



SCENARIO NOTE TO THE DEPUTY MINISTER

CALL BETWEEN DEPUTY MINISTER OF INFRASTRUCTURE AND COMMUNITIES AND THE CEO OF TRANSLINK

MEETING DETAILS

- **DATE/TIME:** Friday, January 31, 2020, 3:00 p.m.
- **LOCATION:** Phone call, Deputy Minister's office
- **PARTICIPANTS:**
 - Kevin Desmond, CEO of TransLink (biography at **Annex A**)
 - Kelly Gillis, Deputy Minister of Infrastructure and Communities
 - Marc Fortin, Assistant Deputy Minister, Program Operations
 - Jean-Sebastien Langelier, Director, Infrastructure and Communities

PURPOSE

- This call is an opportunity to prepare for upcoming engagement opportunities and to discuss future investment plans.
 - Minister McKenna and you are scheduled to meet with Kennedy Stewart, Mayor of Vancouver, and Jonathan Côté, Mayor of New Westminster, on February 5, in Ottawa.
 - The Minister will also be in Vancouver for the Globe 2020 conference on February 11, where she may again meet with Mayors' Council officials.
- It is also an opportunity to discuss updates to important files for TransLink and Infrastructure Canada, including proposed new federal support for the acquisition of zero emission buses and a permanent federal transit fund, as well as the recently signed local Memorandum of Understanding (MOU) on the University of British Columbia (UBC) Skytrain extension.

HIGHLIGHTS/KEY CONSIDERATIONS

- On January 29, 2020, the City of Vancouver, UBC and the Musqueam, Squamish and Tsleil-Waututh Development Corporation (MST-DC) announced the signing of an MOU (**Annex C**). This MOU commits the partners to work collaboratively toward the joint objective of securing federal, provincial and regional support/approvals to have the SkyTrain extended to UBC as soon as reasonably possible.
 - The Skytrain to UBC project proposal, which has a preliminary cost estimate of \$3-4 billion (**Annex D**), is still in a planning and technical study phase. This

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project is a further extension of the Millennium Line Broadway Extension (MLBE) project, which is not expected to be completed until 2025.

- [REDACTED]
- [REDACTED] Mayor Kennedy said at the MOU press conference that: "We're asking Prime Minister Justin Trudeau and Premier John Horgan to commit to this project."
- In addition, TransLink will have great interest in Minister McKenna's mandate commitment to introduce new funding to support the purchase 5,000 zero-emission buses over the next five years. TransLink has ambitious plans to start electrifying its bus fleet in 2021, as laid out in its Low Carbon Fleet Strategy (**Annex B**).
 - The plan mentions the purchase of 635 zero-emission battery-electric buses throughout the next decade, which would require about \$248M for the charging infrastructure and \$199M for the purchase of the battery-electric buses. [REDACTED]

KEY BACKGROUND

Minister engagement with Metro Vancouver Stakeholders

- At a February 5 meeting in Ottawa, Mayor Stewart and Mayor Côté are expected to seek additional information on the Minister's mandate letter commitments to make federal public transit funding permanent, and to support zero-emission buses and rail systems.

[REDACTED]

- The Minister is expected to attend the GLOBE 2020 Forum on February 11 in Vancouver.

TransLink Low Carbon Fleet Strategy

- [REDACTED]

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- TransLink operates a fleet of 262 electric trolley buses. This represents the largest and most successful deployment of electric buses in Canada. Trolley buses are a distinct technology with different operational and infrastructure requirements than battery electric buses.
- In October 2018, TransLink adopted two significant environmental targets: an 80 per cent reduction of GHG emissions by 2050, and to utilize 100 per cent renewable energy in all operations by 2050.

Extension of the SkyTrain from Arbutus to UBC Point Grey Campus

- The \$3-4 billion Skytrain to UBC project, which is still in a planning and technical study phase, is a further extension of the MLBE project—which isn't expected to be completed until 2025.
 - UBC is currently served by the 99 B-Line, which is said to be the busiest bus route in Canada and the United States, according to a report submitted to the Mayors' Council.
- This MOU commits the partners to working collaboratively toward the joint objective of securing federal, provincial and regional support/approvals to have SkyTrain to UBC completed as soon as reasonably possible.
 - An academic institution, a First Nations development corporation, and a municipality coming together to advocate for a transit infrastructure project is unique in Canada. It is an example of joined-up planning that could better respond to place-based needs.
 - One of the goals of the MOU is for the partners to accelerate regional, provincial, and federal funding approvals for design and construction of the UBC SkyTrain Extension. This will include the partners coordinating their advocacy and communications efforts with the Mayors' Council.

MLBE project

- The MLBE project will extend the existing Millennium Line by 5.7 km and add 6 stations. About 5 kms of the project is a subway, which will terminate at Arbutus Street.
- The total project cost for MLBE is stated at \$2.2 billion, and the federal government will be contributing \$888 million through the Public Transit Stream of the Investing in Canada Infrastructure Plan. [REDACTED]

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- The project was announced in September of 2018, and its construction is forecasted to begin this summer. The projects expected completion data is in 2025.

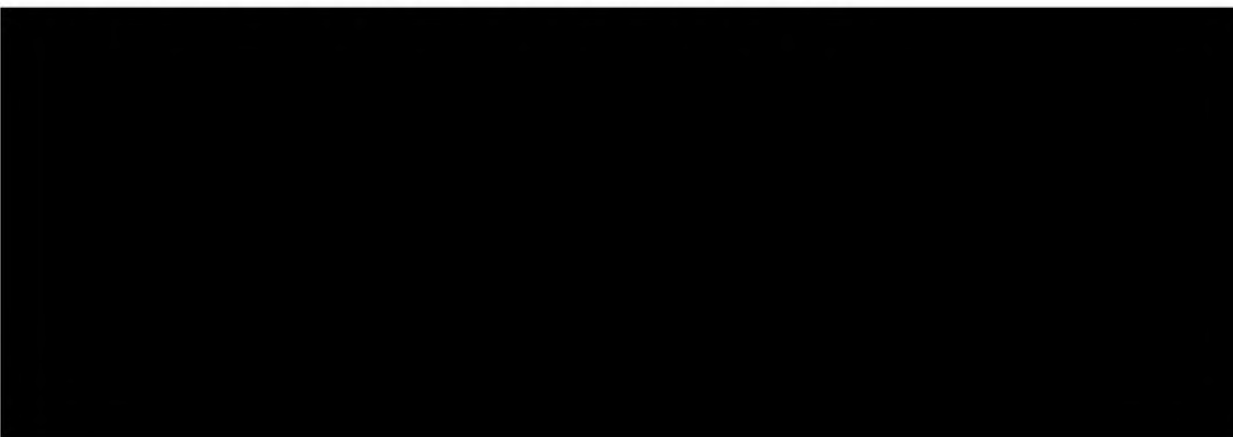
TransLink funding from INFC

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- British Columbia's ICIP allocations under the Public Transit stream total over \$2.6 billion, of which \$2.2 billion is allocated to TransLink for transit projects within Greater Vancouver.

- The Greater Vancouver Regional Fund pools 95% of Metro Vancouver and its member municipalities' per capita allocation of the Gas Tax Fund to support regional transportation projects proposed and delivered by TransLink.

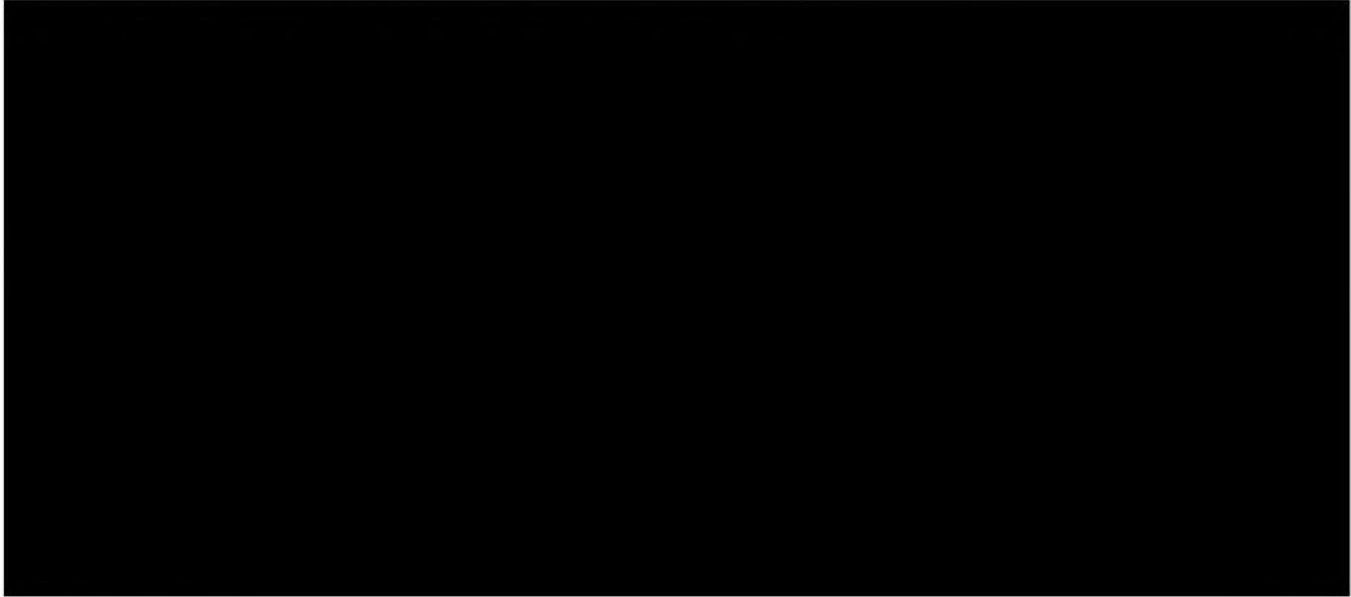
- The fund will deliver approximately \$1.5 billion in public transit investments over ten years to benefit Greater Vancouver.

PROPOSED TALKING POINTS/PROPOSED QUESTIONS

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 *permanent transit funding*


- The Minister's mandate letter committed to establishing a permanent source of funds to support the ongoing development of public transit.



Attachments:

Annex A – Kevin Desmond Biography

Annex B – TransLink Low Carbon Fleet Strategy

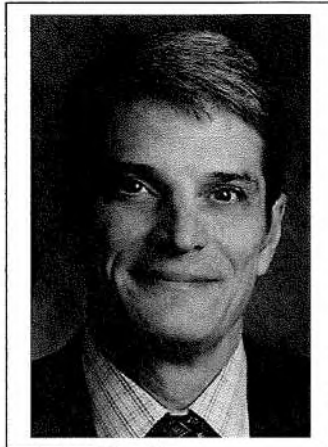
Annex C – 

Annex D – First Nations, UBC, Vancouver launch joint pitch to fund Broadway subway completion

Annex E – Background TransLink Priorities and Funding

ANNEX A

Kevin Desmond
CEO, TransLink



The TransLink Board of Directors selected Desmond as the new Chief Executive Officer on March 21, 2016. Desmond was previously the General Manager of King County Metro Transit, a large regional transit system which serves Seattle, Washington, where he had worked since 2004. During his tenure, Metro Transit launched light rail and streetcar service, several bus rapid transit lines, and rolled out the ORCA Card.

Prior to Metro Transit, Desmond was Vice-President of Operations and Development at Pierce Transit in Tacoma, Washington. Desmond also acted as Chief of Operations Planning for New York City Transit. Prior to that, he served as Deputy Director in Mayor Koch's Transportation Office and Assistant Commissioner for the New York City Taxi and Limousine Commission.

Desmond has a master's degree in public administration from New York University. He is on the Canadian Urban transit Association's Board of Directors [REDACTED]

TRANSLINK LOW CARBON FLEET STRATEGY

Briefing Note | November 27, 2019

EXECUTIVE SUMMARY

In October 2018, TransLink adopted two significant environmental targets: an 80 per cent reduction of greenhouse gas (GHG) emissions by 2050, and to utilize 100 per cent renewable energy in all operations by 2050. Although ambitious, our analysis indicates that meeting these targets is possible with zero and low-carbon fuels and technologies, but it means that bold action is required through policy decisions, investment planning, and funding support.

Our emerging strategy is to begin electrifying our bus fleet early next decade, and to use renewable fuels as we transition. Our electric trolley bus fleet makes up 17 per cent of our fleet, and is already zero-emission, and has no tailpipe air pollutants (nitrogen oxide, NOx and particulate matter, PM). In order to electrify our bus fleet commencing in the 2021 procurement year, now is the time to begin planning and procuring charging infrastructure for our new transit centre scheduled to open in 2023, and for one of our existing transit centres to convert to all-electric in 2026. We will also need to consider on-route charging for select routes within Metro Vancouver during this timeframe.

If we were able to purchase only zero-emission battery-electric buses throughout the next decade (635 buses¹), we can reduce our lifecycle GHG emissions by over 40 per cent (~90,000 tonnes CO₂e) and eliminate air pollutants from these buses. In order to do so, we require in the order of **\$248M for the charging infrastructure and \$199M for the purchase of the battery-electric buses.**

TransLink does not have a funding source for the transition to electrification and if we had to make this transition with our current approved funding, we would be competing with transit expansion. It is important that TransLink continue to expand our bus fleet, thereby eliminating car trips and reducing GHG emissions in the region and at the same time, move forward with replacing buses with internal combustion engines to battery-electric buses, thereby reducing our own environmental footprint. TransLink, the region and the province will achieve a double benefit with respect to GHG emissions and air quality, aligning with the CleanBC strategy.

DISCUSSION

Transportation accounts for over 35 per cent of all greenhouse gas emissions in Metro Vancouver. TransLink plays a particularly important role in reducing emissions in the region by expanding and improving products and services to grow transit ridership, ease traffic congestion, and reduce single-occupancy vehicle kilometers traveled; by promoting compact, active, pedestrian- and transit-oriented communities; and by supporting non-motorized travel.

As one of the region's largest consumers of diesel fuel and operator of a fleet of heavy-duty vehicles, TransLink also plays an important role in reducing emissions in our own operations.

In October 2018, the Mayors' Council and TransLink's Board of Directors approved two environmental sustainability targets:

- An 80 per cent reduction of greenhouse gas (GHG) emissions by 2050; and
- Utilize 100 per cent renewable energy in all operations by 2050.

¹ Includes a 15% replacement ratio for depot charged buses, and 5% for on-route charged buses.

Our commitments align with federal and provincial legislation, specifically BC's *Climate Change Accountability Act* which includes legislated targets for reducing greenhouse gases by at least 40 per cent below 2007 levels by 2030, 60 per cent by 2040, and 80 per cent by 2050.

Low Carbon Fleet Strategy

Phase One of the 10-Year Mayors' Vision of the 2017-2026 Investment Plan committed TransLink to manage the system to be more efficient and customer-focused. Within this commitment, TransLink committed to developing a Low Carbon Fleet Strategy (LCFS) with the goal of reducing fleet emissions across the region of Metro Vancouver. In July 2017, TransLink began the development of the LCFS with the goal of:

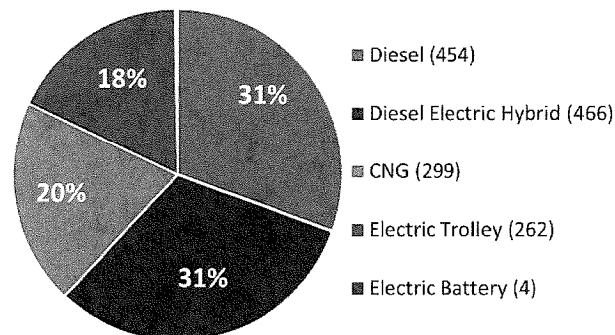
- Comparing bus technologies and fuels that:
 - are expected to be commercially available in 2020 and later years;
 - can significantly reduce fleet GHG emissions; and
 - will be consistent with projected future funding and CMBC service requirements.
- Identifying the level of additional funding that would be required to meet an 80 per cent reduction of GHG emissions from our revenue bus fleet by 2050.

The first phases of the LCFS analysis have concluded that the use of renewable fuels in existing buses can provide a cost-effective way to get early GHG reductions, but only significant electrification can achieve the 80 per cent reduction of GHG emissions by 2050. While current electric buses are more expensive than diesel buses, costs are projected to come down as the technology matures. Life-cycle cost parity for electric battery buses is expected by model year 2025 or sooner. While there will be fuel savings and a reduction of maintenance costs, the life-cycle fleet costs for electrification over the next 30 years are projected to be on par compared to diesel primarily because of the cost of charging infrastructure. Transitioning to battery electric buses will require significant charging infrastructure development and changes to bus operations.

Bus Fleet Composition and Procurement Plan

TransLink's bus fleet is operated and managed by Coast Mountain Bus Company (CMBC). Currently, CMBC operates 1,485 buses of which more than 45 per cent is all-electric trolleys, diesel-electric hybrid or battery-electric buses (refer to Figure 1, below).

Figure 1: Current CMBC Bus Fleet Composition (1,485 buses)



CMBC generally replaces vehicles after 17 years of operation and/or over 1M kilometers. At present, as older diesel vehicles are phased out, they are replaced with either compressed natural gas (CNG) or diesel-electric hybrid vehicles.

Table 1 below outlines CMBC's Bus Procurement Plan over the next 10 years (2020-2029). In addition to the 40-ft and 60-ft buses, the current trolley fleet of 262 buses has been in service since 2006 and is scheduled for replacement in the 2027–2028 timeframe. These buses are already powered by electricity and therefore, have equivalent carbon emissions to battery buses. There is a strong business case to maintain the current trolley system for one more procurement cycle while focus is made on transitioning the older generation diesel and hybrid buses to zero emission.

Table 1: CMBC Bus Procurement Plan²

		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	TOTAL
40-ft	Baseline	0	57	126	69	197	0	0	17	0	17			483
	Procurement	0	9	19	10	16	0	0	3	0	3			60
	Inc - depot charge	0	66	145	79	213	0	0	20	0	20			543
	TOTAL	0	66	145	79	213	0	0	20	0	20			543
60-ft	Baseline	0	0	16	0	39	0	0	25	0	0			80
	Procurement	0	0	2	0	6	0	0	4	0	0			12
	Inc - depot charge	0	0	18	0	45	0	0	29	0	0			92
	TOTAL	0	0	18	0	45	0	0	29	0	0			92
TOTAL BUSES	Baseline	0	57	126	69	197	0	0	17	0	17			483
	Procurement	0	9	19	10	16	0	0	3	0	3			60
	Inc - depot charge	0	66	145	79	213	0	0	20	0	20			543
	TOTAL	0	66	163	79	258	0	0	49	0	20			635
TOTAL BUSES	Baseline	0	0	16	0	39	0	0	25	0	0			80
	Procurement	0	0	2	0	6	0	0	4	0	0			12
	Inc - depot charge	0	0	18	0	45	0	0	29	0	0			92
	TOTAL	0	0	18	0	45	0	0	29	0	0			92
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	TOTAL	0	66	163	79	258	0	0	49	0	20			635
TOTAL BUSES	Baseline	0	0	16	0	39	0	0	25	0	0			80
	Procurement	0	0	2	0	6	0	0	4	0	0			12
	Inc - depot charge	0	0	18	0	45	0	0	29	0	0			92
	TOTAL	0	0	18	0	45	0	0	29	0	0			92

OPPORTUNITY

The CleanBC strategy outlines specific actions to meet BC's 2030 GHG reduction goals by shifting away from fossil fuels and towards clean and renewable energy. The current plan outlines action that will achieve 75 per cent of its GHG reduction goals, and the remaining 25 per cent is to be determined. One of the sectors identified as a strong potential in making up the 25 per cent is cleaner public transportation. TransLink can help the province meet its goals.

Over the next decade, TransLink has the opportunity to transition approximately 50 per cent of our bus fleet to clean, zero-emission electric buses. If this opportunity is missed and internal combustion engines are procured, realizing any meaningful GHG reductions over the next two decades will be a challenge.

² This Fleet Procurement Plan includes an additional 15% more buses for depot charged buses and 5% more buses for on-route charged buses. This Plan only includes replacement buses, and not expansion. 50 replacement compressed natural gas (CNG) buses have been excluded in the 2021 procurement year to fully utilize the existing fueling infrastructure. It is assumed TransLink will procure renewable natural gas for these buses.

Recommended Technology Pathway 2020-2050

The recommended technology pathway for bus and fuel purchases between 2020 and 2050 includes:

- Beginning in 2023, start to replace retiring diesel and CNG 40-ft and 60-ft transit buses with battery-electric buses. Between 2023 and 2030, TransLink may elect to replace some retiring buses with new hybrid-electric buses, but after 2030 all retiring buses should be replaced with battery buses to achieve complete electrification of the fleet by 2050;
- With the evolution in battery technology, depot charging may be sufficient for many routes. On-route charging may also be used for selected routes.
- Replace the existing trolley bus fleet with new trolley buses at the end of their useful life, in 2027-2028, and continue to operate the trolley bus system in the short and medium term. After 2040, re-evaluate the option of replacing trolley buses with battery buses.
- After 2030, TransLink should assess commercial availability and cost of long-range battery buses and hydrogen fuel cell buses as potential options for replacing retiring highway coaches; and
- After 2030, TransLink should assess commercial availability and cost of battery shuttle buses as a potential option for replacing retiring shuttle buses in later years.

Fleet Electrification Transition Costs - 2020-2050

All costs are at the planning level and will be revised during future analytical and design phases.

Through 2050, the modeled fleet electrification scenario will require \$1.47 billion (nom \$) in additional capital funding, compared to baseline fleet replacement with hybrid electric, CNG, and trolley buses. However, there will be a net operating cost savings of \$994 million (nom \$). This would result in a total net total cost of \$473 million to electrify the fleet (an increase of 2.3 per cent).

Fleet Electrification Transition Costs – 2020 - 2029 Investment Plan Cycle

Three options for electrification investments between 2020 and 2029, were developed and are described below:

Cautious and Constrained: This is the least aggressive and lowest cost option, in recognition that funding is not yet secured, and that the technology is continuing to evolve rapidly, such that moving at a measured pace may result in lower net costs over the long term.

Moderate: This is a faster pace of investment which achieves greater GHG reductions over the next 10 years while still managing technology risk.

Leadership/Leading Edge: This is the most aggressive and most costly option representing the fastest possible turn-over of the fleet to battery-electric buses without retiring existing buses early. This option achieves maximum GHG reductions over the next 10 years, but also incurs a greater level of financial and technology risk.

Table 2 below summarizes the 2020 - 2029 bus fleet electrification details and costs associated with each of the three investment options.

Table 2: Bus Fleet Electrification Plan and Costs 2020 – 2029

		INVESTMENT OPTIONS		
		CAUTIOUS & CONSTRAINED	MODERATE	LEADERSHIP LEADING EDGE
Battery-Electric Buses Purchased		95	314	635
Bus In-route Chargers Installed		1	4	17
Bus Depot Chargers Installed at		MTC	MTC	MTC and BTC
Routes Electrified	Depot Charging	30% of MTC routes (4 routes)	100% of MTC routes	100% of MTC routes 80% of BTC routes
	In-route* Charging	Route 100	Routes 100, 159, 169, 188	Route 100 and 95% of PTC routes
Capital Investments 2020-2029	Buses	\$37	\$110	\$199
	Infrastructure	<u>\$58</u>	<u>\$89</u>	<u>\$248</u>
(nom \$ millions)** TOTAL		\$95	\$199	\$447 (refer to Appendix A)

*To be confirmed as battery technology evolves.

** All costs and savings are planning level estimates and will be revised with future analytical and design work.

***Exclusive of construction and financing costs.

There will be operational savings with each of the investment options noted above. The estimated operational savings range from \$27M to \$124M and are dependent upon several key cost assumptions around maintenance and fuel costs.

GHG / Air Emissions

Figure 2 below summarizes the expected GHG reductions by 2050 associated with each of the capital investment options. All three investment options enable TransLink to reach an 80 per cent reduction of GHG emissions by 2050 and have varying reductions over the next 10 years based on the three options for capital investments (refer to Table 3 below).

Figure 2: Estimated GHG Reductions by 2050

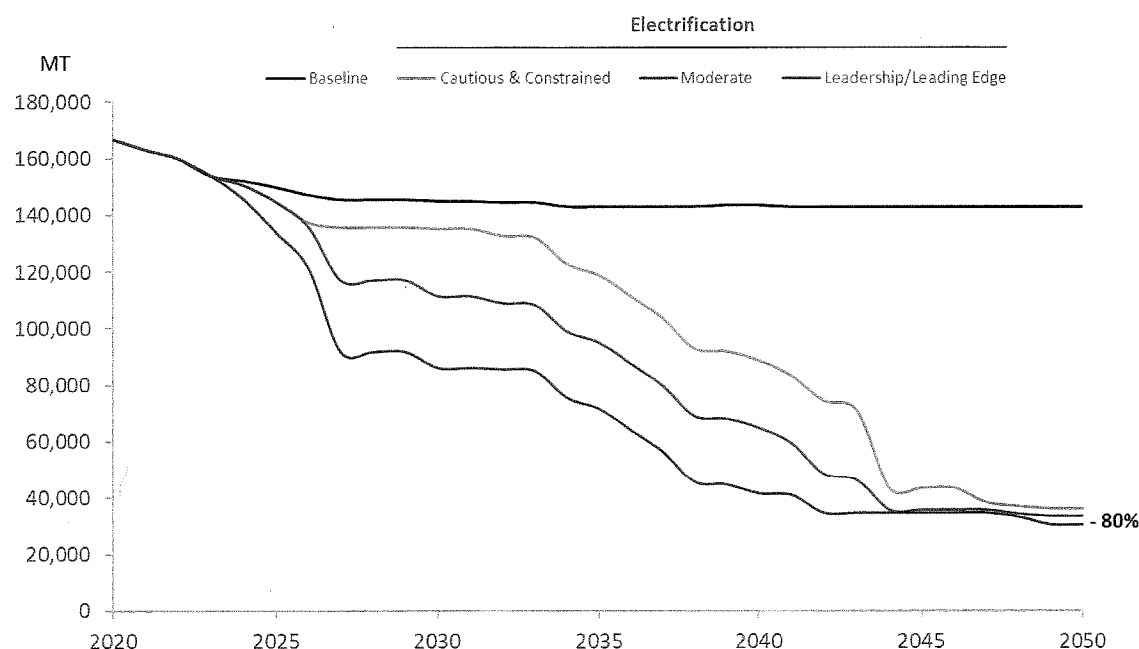


Table 3: Estimated GHG Reductions (2020-2029)

METRIC	INVESTMENT OPTIONS		
	CAUTIOUS & CONSTRAINED	MODERATE	LEADERSHIP LEADING EDGE
GHG Reduction 2020 – 2029 (tonnes)	56,000	137,000	269,000
GHG Reduction from Baseline by 2029 (per cent)	19%	33%	48%

The transition to electric buses also eliminates particulate matter and nitrogen oxides, common urban air pollutants. Compared to diesel-hybrid buses, battery electric buses are expected to reduce annual nitrogen oxide (NOx) by 26,000 g per bus and particulate matter (PM) by 3,500 g per bus.

CHALLENGES

Transitioning to a low carbon fleet will require support from our municipal partners, the province and the federal government. Some of the key federal and provincial actions include policies that increase the supply of zero emissions vehicles and that increase the availability of renewable fuels. While the long-term targets are achievable, there are challenges to achieving them:

Funding support:

- For TransLink to achieve its targets, electrification of the fleet will be more capital intensive and will require leveraging capital contributions from external sources, such as the Green Infrastructure Fund, or funding earmarked to support CleanBC.

BC's low carbon fuel program – compliance credits:

- The ownership of electricity credits under BC's low carbon fuel program is currently designated to BC Hydro. While BC Hydro has been an excellent partner in the development of TransLink's low carbon fleet strategy, they do not have a program dedicated to reinvesting the revenue gained from the sale of their compliance credits back into clean transportation. TransLink estimates that revenue gained through the electrification of our bus fleet would be equal to approximately \$250M over the next 30 years. If TransLink was provided ownership of the electricity credits, the revenue would directly advance clean transportation fuels in the province.

Technology advancements:

- While the pathway to a low carbon fleet doesn't depend on new technologies, existing technologies are expected to improve in quality and/or price over time. For example: the cost of batteries for electric buses is expected to drop almost 50 per cent in the next ten years. If the availability and cost of renewable fuels doesn't improve over time, it will be difficult to justify the transition. Conversely, if existing technologies advance faster than anticipated and/or new technologies emerge, achieving the targets will become easier.

Power Resiliency:

- For a full fleet roll-out of electric buses, TransLink will have to develop contingency plans for maintaining some level of bus charging even if grid power is disrupted to one or more charging locations. Information provided by BC Hydro indicates that their system has historically been very reliable. Between 2015 and 2018, 70 percent of all circuits had annual outage time of less than 5 hours, and 90 percent had annual outage time of less than 10 hours. In addition, for 86 percent of circuits average outage time per incident was less than an hour. Most outages were caused by either weather or vehicle damage. Given the high reliability of the system, the recommended alternative is to use mobile diesel generator(s) that can be moved between locations as needed, rather than providing fixed back-up generation at every charging location.
- For depot charging one or more 750 kW mobile generators would be required, with each providing the ability to supply power to up to 15 buses charging concurrently overnight at a depot. For in-route charging one or more 450 kW mobile generators would be required³, with each providing the ability to supply power to one in-route charger.
- The number of chargers required would depend on the number of electric buses deployed, and the likelihood of losing power at each charging location separately, and at multiple locations simultaneously. TransLink will work with BC Hydro to further evaluate historical trends and to project future needs.

³ It may also be possible to develop a mobile battery pack system that could power an in-route charger for 12-hours or more.

Appendix A: LCFS Funding Requirements

LCFS Funding Requirements

The total capital investments required to meet the GHG reductions that aligns with the provincial targets is approximately **\$450M** and includes:

- **\$200M** for the procurement of 635 battery-electric buses (incremental costs from diesel-hybrid and compressed natural gas), and
- **\$250M** is for infrastructure investments, including designing and operating 100 per cent of routes out of Marpole Transit Centre, 80 per cent of the routes out of Burnaby Transit Centre, and 95 per cent of the routes from Port Coquitlam Transit Centre as electric. All costs are planning level estimates and will be revised with future analytical and design work. Costs are exclusive of construction and financing costs.

PROJECTS	PROJECT DESCRIPTION	2021	2022	2023	2024	2027	2029
Marpole Transit Centre	Make ready for full depot electrification; installation of SAE J3105 chargers	\$50.1M	\$23.0M	\$7.2M			
Burnaby Transit Centre	Make ready for full depot electrification; depot expansion and installation of SAE J3105 chargers				\$56.9M	\$76.1M	
On-Route Chargers	Install on-route chargers and depot maintenance chargers		\$3.3M	\$29.8M			
Buses (incremental cost to diesel-hybrid)	On-route and depot charged battery-electric buses	\$23.2M	\$59.0M	\$23.3M	\$64.5M	\$21.9M	\$7.2M
TOTAL FUNDS		\$74M	\$86M	\$61M	\$122M	\$98M	\$7M

**Pages 15 to 19
are withheld
pursuant to paragraphs
20(1)(b) and 20(1)(d)
of the *Access to Information Act***

**Les pages 15 à 19
Font l'objet d'une exception totale
conformément aux dispositions des
paragraphes
20(1)(b) et 20(1)(d)
de la loi sur l'accès à l'information**

First Nations, UBC, Vancouver launch joint pitch to fund Broadway subway completion

BY SIMON LITTLE GLOBAL NEWS - Posted January 29, 2020 2:06 pm

Three Lower Mainland First Nations, the University of British Columbia (UBC) and the City of Vancouver have signed an agreement to work together in seeking funding for a subway to UBC.

The memorandum of understanding (MOU) between the city, the university and the Musqueam, Squamish and Tsleil-Waututh First Nations commits to working collaboratively to get funding from the federal, provincial and Metro Vancouver governments.

"The public expects us to get the Broadway subway all the way to UBC, but right now, we don't have the funding in place. We need to act quickly to secure this funding, and that's why we've signed this historic MOU," said Vancouver Mayor Kennedy Stewart.

"We're asking Prime Minister Justin Trudeau and Premier John Horgan to commit to this project."

Stewart said he was heading to Ottawa next week, where he would make the city's pitch for funding.

Both the City of Vancouver and the TransLink Mayors' Council voted early last year to back an extension of the subway to UBC.

Currently, the project is only funded from the existing VCC-Clark station to Arbutus Street at an estimated cost of \$2.83 billion.

Extending the project the remaining distance to the university is projected to cost between \$3 billion and \$4 billion more.

Musqueam, Squamish and Tsleil-Waututh are partners in the MST development corporation, which owns and plans to develop the so-called Jericho Lands that would be near a future subway extension.

"When we are able to work together we are able to create that shared mutual benefit for our communities and for future generations that are going to receive that benefit as a result of us working together," said Squamish Coun. Khelsilem.

UBC has previously offered to help fund the extension. On Wednesday president Santa Ono said providing rapid transit was key to the future of the institution, which is also home to more than 24,000 residents.

"SkyTrain will foster strong linkages to UBC that go far beyond moving students, faculty and staff back and forth," said Ono.

"This line will link some of the strongest and most important education institutional here in Vancouver. An efficient, affordable, sustainable, interconnected rapid transit network that includes a full extension to UBC can be a great enabler on all of these fronts."

In September, the province unveiled the location of the six funded subway stops: Great Northern Way, Mount Pleasant, Broadway-City Hall, Fairview-VGH, South Granville and Arbutus.

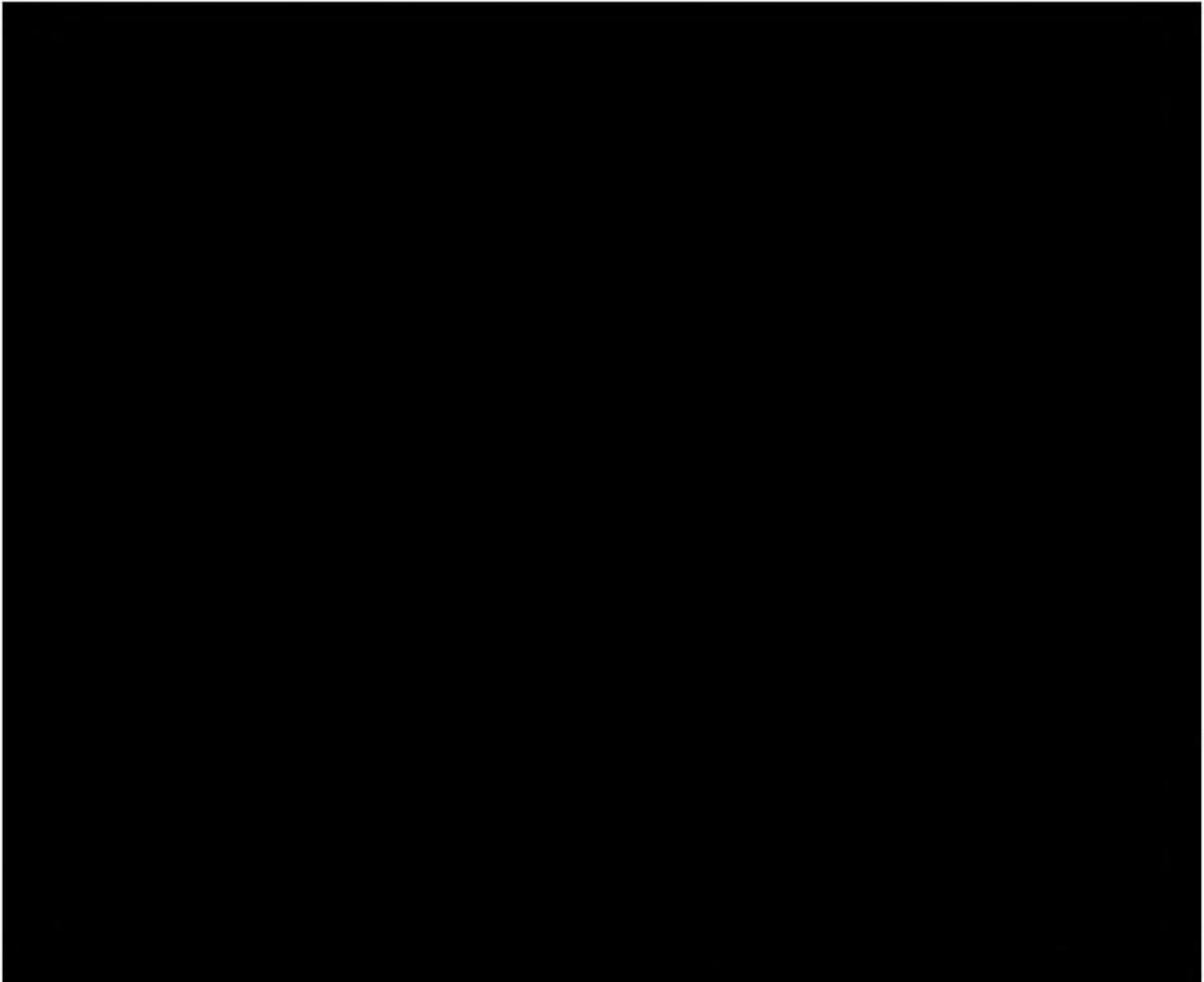
A bus loop will be built at the corner of Broadway and Arbutus Street to accommodate students and passengers heading west from the terminus.

Construction on the subway is slated to begin early this year, with a projected launch date for the line in 2025.

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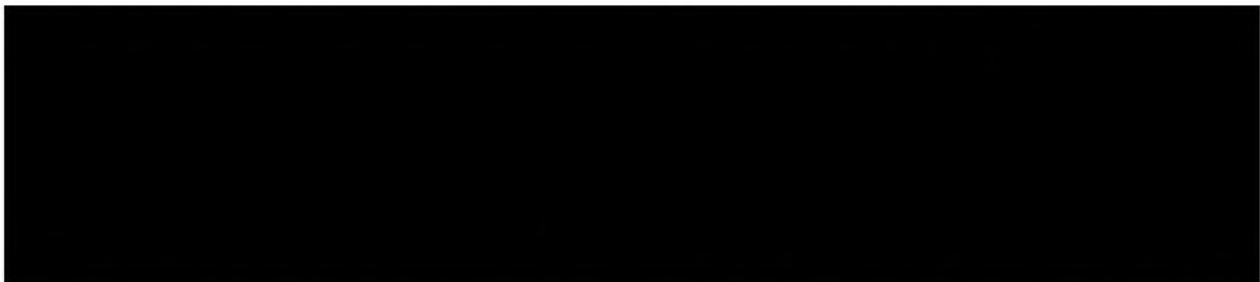
ANNEX E

BACKGROUND: TRANSLINK PLANS, PRIORITIES, AND FUNDING



Severed as agreed upon with requester

Surrey-Newton-Guildford Light Rail Transit (Surrey LRT) Project



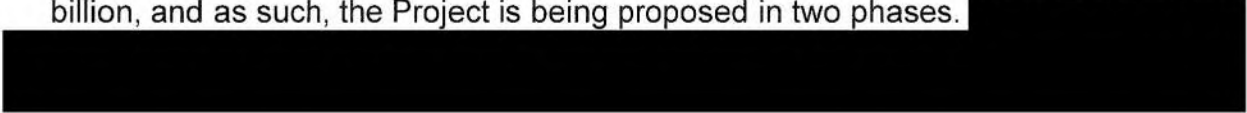


- The Surrey SkyTrain Project is a 16-km elevated extension of the existing Expo Line along the Fraser Highway from King George Station to Langley City Centre. The


Severed as agreed upon with requester

ANNEX E


preliminary estimates for the full Surrey to Langley SkyTrain are approximately \$3.12 billion, and as such, the Project is being proposed in two phases.



George Massey Tunnel

- The previous provincial government proposed replacing the existing George Massey tunnel with a 10-lane bridge at an estimated cost of \$3.5 billion. An independent technical review released in December 2018 recommended the previous government's project be reconsidered. Following additional consultations, technical review, and vote by a Metro Vancouver task force, it was decided that the project would focus on an 8-lane tube tunnel. Cost estimates for the tube tunnel are not known at this time. To date \$80 million has been spent on the consultation process.
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Greater Vancouver Regional Fund (Gas Tax Fund)

- 
A number of key priorities have been funded over the last several years including:

- September 2016: \$127.18 million for nine projects comprising replacement transit fleet vehicles (84 community shuttles, 75 HandyDART vehicles, and 238 conventional buses).
- April 2017: \$121.28 million for six projects comprising expansion transit fleet vehicles, four battery electric buses for a pilot program and equipment for deferred retirement of transit vehicles.
- October 2017: \$121.15 million for seven projects comprising expansion and replacement transit vehicles.
- October 2018: \$142.10 million for 154 expansion and replacement transit vehicles.

Public Transit Infrastructure Fund projects in the Greater Vancouver Area

- Through the Public Transit Infrastructure Fund (PTIF), INFC has funded 17 projects in the Greater Vancouver area.
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Urban Project Gatineau: Transit, Mobility and Road Safety

River View Salon, Canadian Museum of History, Gatineau, Quebec

Friday, February 7, 2020

7:30 am – 4:30 pm


MEETING OBJECTIVES

- The focus of this Urban Project meeting is Transit, Mobility and Road Safety. This topic is timely given work underway to advance the Minister's recent mandate commitments.
 - The meeting's agenda appears at **Annex A**.
 - A Framing Report released in advance of the event appears at **Annex B**.
- This is an opportunity to receive the views of important stakeholders on:
 - The creation of a permanent federal transit envelope;
 - Factors influencing demand for ZEV Buses under the forthcoming dedicated fund; and
 - The longer-term transition to ZEV transit fleets.
- 
- The event is likely to stress that, despite billions of dollars in investment, many cities still face the challenge of shifting resident behavior towards sustainable transportation options.
 - New approaches are required to see rapid, meaningful change and effectively respond to issues related to the climate emergency, a growing public health crisis, road safety concerns, and other challenges.

Highlights/Key Considerations

- The Urban Project is a national platform convened by the Federation of Canadian Municipalities (FCM) for city leadership to meet and strengthen relationships with government, civil society, and the private sector to address pressing urban challenges and identify common solutions.
 - Founded in 2018, The Urban Project was originally driven by the FCM, Maytree, the Metcalf Foundation, McConnell Foundation, and TD Bank Group. The previous two events were on Innovative Economies in Edmonton in November of 2018, and Housing Affordability in Vancouver in May of 2019.



- The FCM will likely still be advancing the legislative agenda that was outlined in their document *Building better lives together: First 100 days of federal government* (**Annex C**).
 - The organization has notably advocated for any future permanent federal transit funding to be delivered directly to municipalities via an allocations-based formula 

ANNOTATED AGENDA

7:30 - 8:15 Breakfast

8:15 - 8:45 Introductions

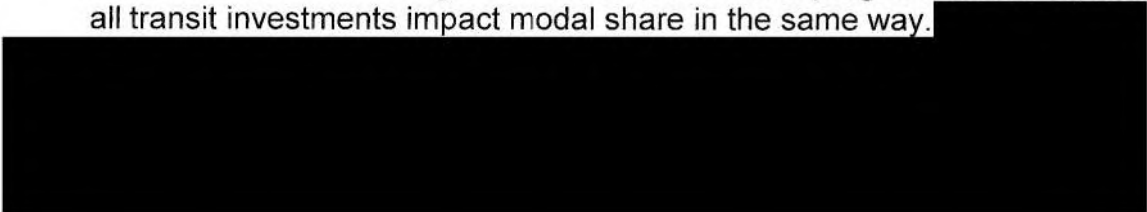
- Welcome: Maxime Pedneaud-Jobin, *Mayor of Gatineau*, and Brock Carlton, *CEO, Federation of Canadian Municipalities (FCM)*
 - Maxime Pedneaud-Jobin, elected in 2013, is a founding member of Projet Gatineau, a think tank on municipal politics. He has a master's degree in regional development from the Université du Québec en Outaouais.
 - Brock Carlton joined the FCM more than 25 years ago, and is an established leader on municipal issues in Canada. He built the FCM's global program, which focuses on strengthening municipal government and on enhancing policy frameworks toward local sustainability.
- Facilitator introduction and objective setting for the day: *Mary Rowe, President and CEO, Canadian Urban Institute*
 - Mary Rowe is a Senior Urban Fellow at Evergreen Future Cities Canada. Previously, she was appointed Deputy Principal Secretary to the Premier of Ontario (2016 – 2018). Mary is an urbanist and author and a champion for community-based approaches to building livable and resilient cities, and their importance to the economic, social, cultural and environmental future of society.

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8:45 - 9:15 Keynote presentation and Questions – Tim Papandreou, Founder
Emerging Transport Advisors

- Timothy Papandreou is an advisor to companies and governments on emerging transport trends. He worked on strategic partnerships at Google X and Waymo to prepare the launch of the world's first fully self-driving ride service. He also co-founded City Innovate, which provides smart city solutions to municipalities. He was also the Chief Innovation Officer for the San Francisco Municipal Transportation Agency.
- 

9:15 - 10:00 Panel discussion and Q&A on transit optimization

- Transit optimization includes a suite of transit priority measures, infrastructure enhancements, and operational policies that can better utilize existing transit resources by improving speed and reliability. These measures can produce short-term benefits (including ridership increases) with relatively low capital expenditures and can be implemented concurrently with expansion projects to provide service improvements during design and construction phases.
 - Infrastructure Canada has established modal shift as one of the key outcomes for its Investing in Canada Infrastructure program. However, not all transit investments impact modal share in the same way.
- 

Panelists

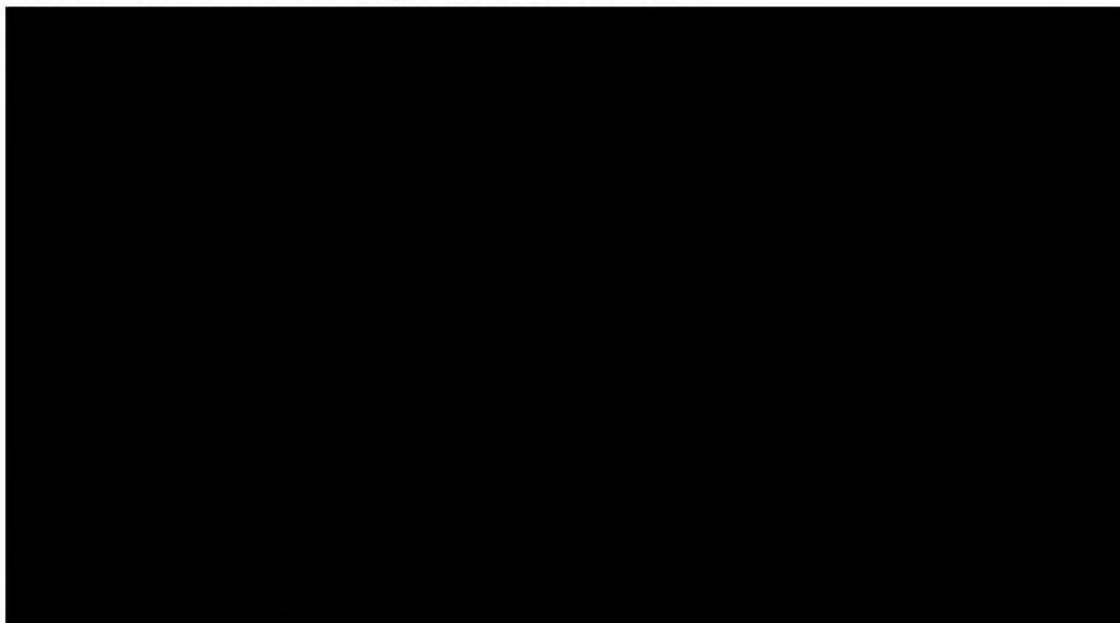
- Mayor Bonnie Crombie, Mayor City of Mississauga
- Cherise Burda, Executive Director, Ryerson City Building Institute
- Myriam Nadeau, President, Société de transport de l'Outaouais

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10:00-10:15 Break

10:15-11:45 Breakout sessions on transit optimization – Led by Mary Rowe and Barbara Gray, General Manager, Transportation Services, City of Toronto

- Session 1: Municipal finance, governance and IGR



- Session 2: Case studies and tactical implementation
 - Giving transit priority over passenger vehicles along key corridors improves the timeliness and efficiency of transit, and can lead to increased ridership.



- Case studies to be discussed include:
 - City of Gatineau: Rapibus Corridor,
 - City of Toronto: King Street Transit Pilot,
 - City of Kingston: Transit Route Optimization, and
 - City of New York: B44 Bus Line. (refer to **Annex B**)
- Congestion negatively impacts the frequency and reliability of transit, necessitating significant increases in operating costs just to maintain existing service levels and reducing the efficiency of transit for riders.

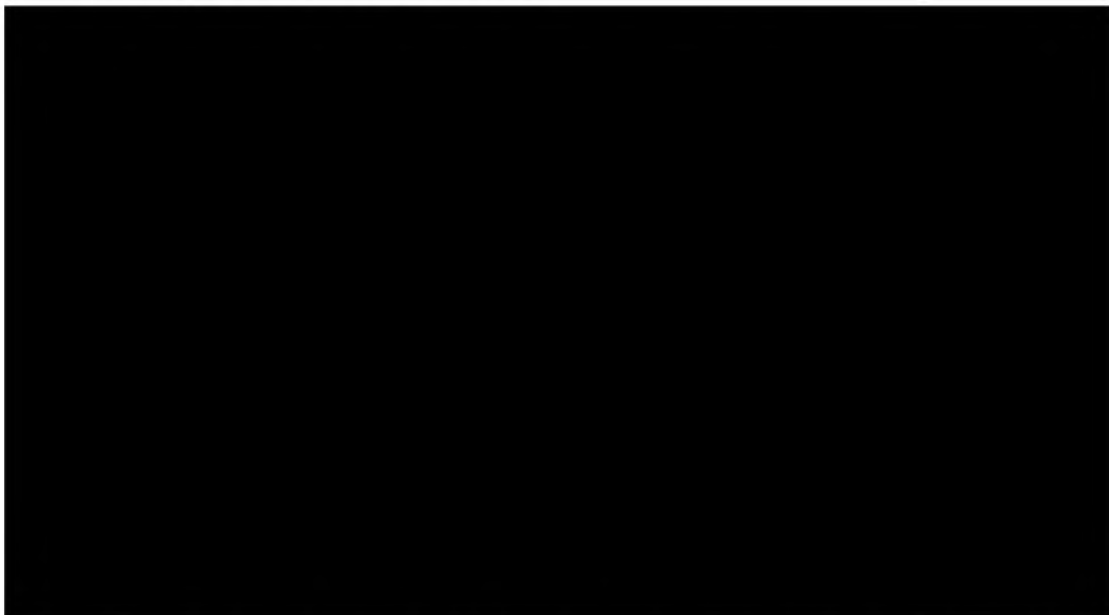
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**11:45-12:15 Facilitated discussion about next steps on transit optimization**

- No further details available at this time.

12:15-1:00 Lunch**1:00-1:45 Panel discussion and Q&A on active transportation (AT) and road safety**

- There are a myriad of benefits with active transportation, including improved public health, air quality, accessibility, and road safety in addition to decreased greenhouse gas emissions and capital expenditures on roadway maintenance. Additionally, AT and transit represent a highly efficient use of road space.
 - Improving modal shares for active transportation and improving road safety for all users is occurring in a context of evolving municipal policy frameworks and priorities, and the practical limits of municipalities to pay for and operate new infrastructure.



- Improvements to road safety play an outsized role for sustainable transportation users, as pedestrians and cyclists are significantly more vulnerable to suffering death or serious injury in a collision. Governments around the world have begun

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implementing Vision Zero strategies, which aim to prioritize human health and safety by eliminating all traffic-related fatalities and serious injuries.

- A critical aspect of Vision Zero is accessibility. Often the most vulnerable road users are seniors, children and people with disabilities. An emphasis should be placed on inclusive design when discussing road safety and Vision Zero.

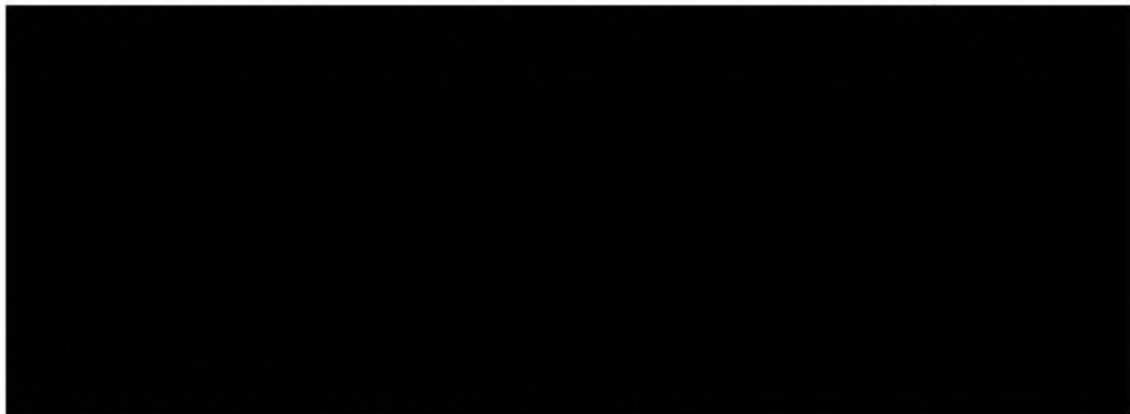


Panelists

- Naheed Nenshi, Mayor City of Calgary
- Catherine Morency, Professor, Polytechnique Montréal
- Amanda O'Rourke, Executive Director, 8 80 Cities


1:45-3:15 Breakout sessions on AT and road safety– *Led by Mary Rowe and Barbara Gray*

- Session 1: Municipal finance, governance and IGR
 - Implementation costs for a network of protected bicycle facilities is orders of magnitude smaller than other transportation infrastructure capable of moving similar volumes of people, such as mass transit or road widening.



- Session 2: Case studies and tactical implementation
 - Cities that have focused on AT infrastructure in the areas of highest demand (such as downtown cores) have seen greater success. Other best practices include; physically separated infrastructure, transit connections, and winter maintenance.

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- AT case studies include: City of Calgary: Centre City Cycle Track Pilot, City of Montréal: Protected Bicycle Network, and City of Seville: Protected Bicycle Facilities. (Read more in **Annex A**)
 - Reducing motor vehicle travel speeds and limiting the amount of traffic is the most effective way to improve road safety for all road users. Road pricing has been effective at reducing traffic volumes and leading to safer streets.
 - Road Safety case studies include vision Zero approaches in City of Edmonton, Oslo and Montreal. (Read more in **Annex A**)
- 

3:15-3:30 Break

3:30-4:00 Facilitated discussion about next steps on AT and road safety

4:00-4:30 Actions going forward and closing remarks

- Mary Rowe
- Carole Saab (FCM)
- Maire Maxime Pedneaud-Jobin

Annexes:

- A. Agenda
- B. Urban Project Framing Report (Gatineau)
- C. Building better lives together: First 100 days of federal government
- D. Land Value Capture Backgrounder



AGENDA

Transit, Mobility and Road Safety

Canadian Museum of History (River View Salon) / Gatineau, Quebec / February 7, 2020

	7:30 – 8:15	Arrival and light breakfast	
Introductions	8:15 – 8:35	Introductions	<i>Maire Maxime Pedneaud-Jobin (Ville de Gatineau)</i> <i>Brock Carlton (FCM)</i>
	8:35 – 8:45	Facilitator introduction and objective setting for the day	<i>Mary Rowe</i>
	8:45 – 9:00	Keynote presentation	<i>Tim Papandreu</i>
	9:00 – 9:15	Q&A	<i>Mary Rowe</i>
Transit optimization	9:15 - 10:00	Panel discussion and Q&A on transit optimization	<i>Mayor Bonnie Crombie (City of Mississauga)</i> <i>Cherise Burda (Ryerson University)</i> <i>Myriam Nadeau (STO-Gatineau)</i>
	10:00 – 10:15	Break	
	10:15 – 11:45	Breakout sessions on transit optimization	<i>Mary Rowe; Barbara Gray</i>
		<ul style="list-style-type: none">• Municipal finance, governance and IGR• Case studies and tactical implementation	
	11:45 - 12:15	Facilitated discussion about next steps on transit optimization	<i>Mary Rowe</i>
	12:15 – 1:00	Lunch	



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Active transportation and road safety	1:00 – 1:45	Panel discussion and Q&A on active transportation and road safety	<i>Mayor Naheed Nenshi (City of Calgary)</i> <i>Catherine Morency (Polytechnique Montréal)</i> <i>Amanda O'Rourke (8 80 Cities)</i>
	1:45 – 3:15	Breakout sessions on AT and road safety <ul style="list-style-type: none">• Municipal finance, governance and IGR• Case studies and tactical implementation	<i>Mary Rowe; Barbara Gray</i>
	3:15 – 3:30	<i>Break</i>	
	3:30 – 4:00	Facilitated discussion about next steps on AT and road safety	<i>Mary Rowe</i>
	4:00 – 4:20	Actions going forward	<i>Mary Rowe</i>
Wrap-up	4:20 – 4:30	Closing remarks	<i>Carole Saab (FCM)</i> <i>Maire Maxime Pedneaud-Jobin</i>

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Transit, Mobility, and Road Safety in Canada

Urban Project Workshop
Framing Report | **February 2020**

Presented by FCM

Contents

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About the Authors

Urban Systems is a professional consulting firm committed to supporting vibrant communities. Our interdisciplinary team works with governments, Indigenous communities, private industry, and non-profit organizations to help build communities that are safe, sustainable and prosperous. Urban Systems has broad and deep experience delivering transportation projects—we work with our municipal and regional clients to envision a better future; prepare strategic, multi-modal plans; and design and deliver high-quality, innovative infrastructure that moves communities towards their goals.

www.urbansystems.ca

Methodology

The research underlying this Framing Report comes from a best practices and emerging trends review, practitioner experience, and stakeholder interviews with a diverse cross section of municipalities and civil society groups, which helped to identify key challenges and opportunities of transportation across Canada.

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1. Introduction

1.1 Urban Project

The Urban Project is a national platform convened by the Federation of Canadian Municipalities (FCM) for city leadership to meet and strengthen relationships with government, civil society, and the private sector to address pressing urban challenges and identify common solutions.

Launched in 2018, the Urban Project examines urban issues through the lens of cross-cutting themes of city finance, governance, intergovernmental relations, and municipal autonomy. The events bring together decision makers to actively co-create solutions to urgent urban problems at a pan-Canadian level.

1.2 Core Themes

Over the past several years, cities across Canada have recognized the importance of optimizing transit service and promoting safe and sustainable transportation – including walking, rolling, cycling, and transit – as a way to reduce congestion and create vibrant, prosperous, and resilient communities.

However, despite investment levels in the billions of dollars, many cities still face the challenge of shifting behaviour towards sustainable transportation. Bold action and new approaches are required to see rapid, meaningful change to respond to urgent issues related to the climate emergency, a growing public health crisis, road safety concerns, and other challenges.

Transit, active transportation, and road safety have emerged as key focus areas for Canadian cities in addressing pressing mobility challenges. This Framing Report explores these themes, presenting innovative, cost-effective, and actionable solutions for municipalities.

2. Mobility Trends

Most big Canadian cities are still automobile-reliant, with all but Toronto, Montréal, and Vancouver seeing at least two-thirds of commute trips being made by motor vehicle.

This section summarizes mobility trends and the importance of transit, active transportation, and road safety.

2.1 Mobility in Canada

Urban mobility is influenced by a number of factors, including the size, layout, and land use of a municipality; design of, and level of investment, in the transportation network; trip purpose; weather; topography; and individual preferences.

Figure 1 shows the 2016 commuting mode share in 22 of Canada's biggest cities, sorted by the proportion of trips made using sustainable transportation modes.

While roughly half of all commute trips in Toronto, Montréal, and Vancouver involve sustainable modes of transportation (1), the national average remains at 19%, while some major urban centres are even lower.

Transit use consistently leads walking and cycling as the preferred mode of sustainable transportation in these cities, particularly in Toronto and Montreal (37% and 35% of all commutes, respectively).

Examining historic travel trends reveals that more work is needed in order to advance sustainable mobility. Over the past two decades, most Canadian municipalities have made relatively little progress in improving sustainable transportation mode shares. Sustainable transportation mode share in Canada's 22 big cities has seen an average absolute increase of only 0.1% and a relative increase of 5.4% since 1996. This mirrors nationwide trends seen in the United States (2).

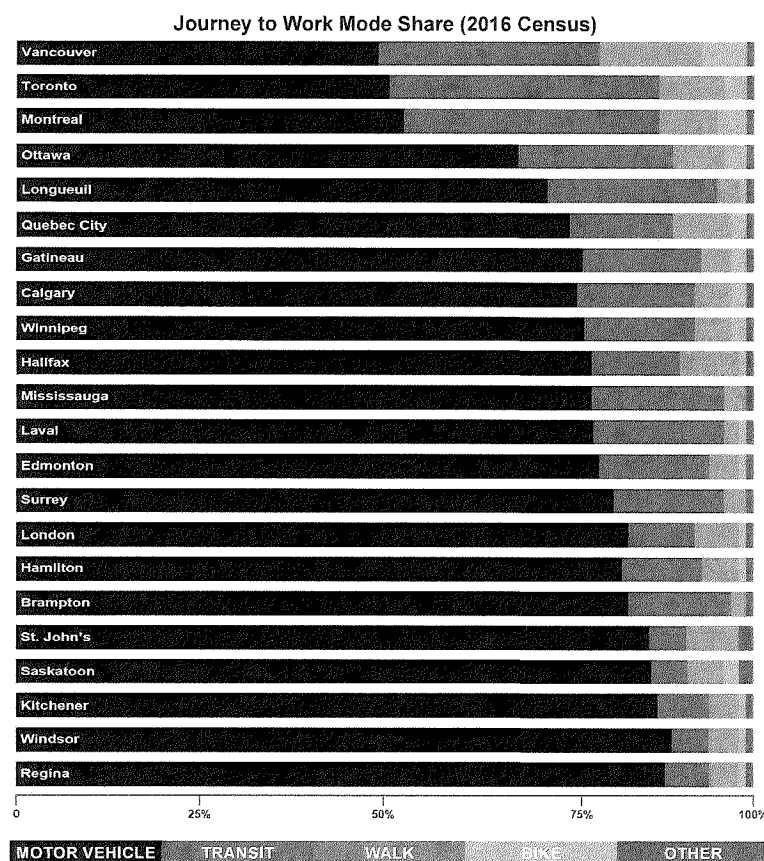


Figure 1 - Commute Mode Share in Canada's 22 Largest Cities (2016 Census)

2.2 Transit Optimization

Providing frequent, reliable, and accessible transit is crucial for enabling sustainable mobility and improving people moving capacity in Canadian municipalities. However, with the exception of a few standout transit systems, transit ridership has slowed, and in some cases declined, in most cities across North America since 2014 (3; 4).

There is no single explanation for this trend (5). Some factors could include gasoline prices, the growing popularity of bikeshare and ride-hailing services (e.g. Uber and Lyft), increasingly dispersed land uses (i.e. urban sprawl), and relatively high transit fares (4; 5). Regardless of the explanation, there is an urgent need to improve transit networks. Transit expansion is necessary but requires major capital expenditures and extensive design and construction periods, resulting in long-term benefits. Transit optimization includes a suite of transit priority measures, infrastructure enhancements, and operational policies that can better utilize existing transit resources by improving speed and reliability. These measures can produce short-term benefits with relatively low capital expenditures and can be implemented concurrently with expansion projects to provide service improvements during design and construction phases.

Many of the most effective tools for optimizing transit are under municipal jurisdiction, including dedicated transit lanes, traffic signals operation, managing curb uses, and enhancing roadway, intersection, and transit stop infrastructure (see **Figure 2**) (6). Multi-modal integration – including better connecting walking and cycling to transit – is also key to transit optimization (7).

TransLink Control	OPERATIONS	Stop Relocation or Consolidation	Boarding Policy	Route Design
Municipality and MOTI Control	SIGNALS	Turn/Movement Restrictions	Queue Jumps	Transit Signal Priorities
		Bus-only Signals	Signal Phase Modification	
	INFRASTRUCTURE	Bus Platform Design	Bus Bulges	Boarding Islands
		Roadway Channelization	Parking Removal	Turn Radii Improvements
	TRANSIT LANES	Curb-side Bus Lanes	Interior/Offset Bus Lanes	Median Bus Lanes
		Contraflow Bus Lanes	Queue Bypass/Transit Approach Lanes	

Figure 2 - Transit Optimization Measures (Source: TransLink Bus Speed and Reliability Report)

2.3 Active Transportation

Municipalities recognize the myriad benefits of active transportation, including improved public health, air quality, accessibility, and road safety in addition to decreased greenhouse gas emissions and capital expenditures on roadway maintenance. Additionally, active transportation and transit represent a highly efficient use of road space, as shown in **Figure 3**.

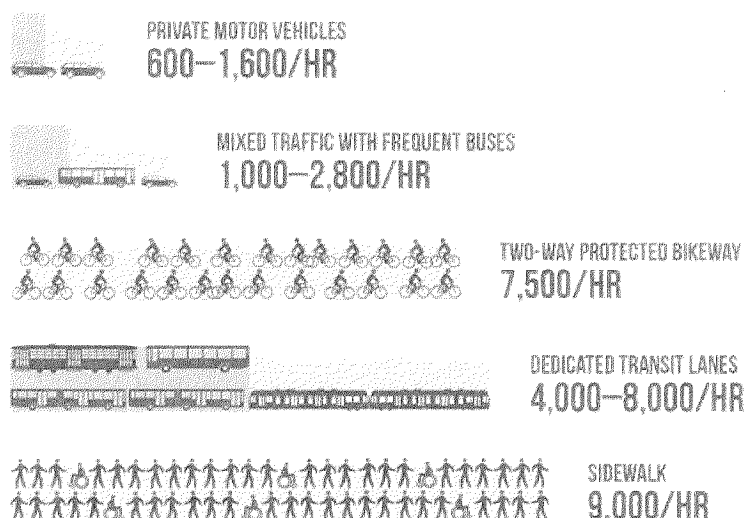


Figure 3 - People Moving Capacity by Mode (Source: NACTO Transit Street Design Guide)

Active transportation mode share remains relatively low in Canada, with mixed results across the country. Between 1996 and 2016, cycling mode share increased an average of 15.2% among the 22 big cities, with Gatineau (109% relative change), Montréal (99%), and Vancouver (88%) leading the way. However, cycling in 10 of the 22 big cities decreased in the same period.

Meanwhile, walking mode share decreased an average of 18.2% between 1996 and 2016. The only cities that saw increases in walking in this same period were Gatineau (68% relative change), Vancouver (28%), and Mississauga (3%).

2.4 Road Safety

Road safety continues to be a major concern for Canadian cities, with motor vehicle collisions being one of the leading causes of accidental death in the country. Each year, nearly 2,000 people are killed and a further 165,000 are injured (10,000 seriously) while using the transportation network in Canada (8). It is estimated that motor vehicle collisions cost Canadians \$37 billion annually (8).

Improvements to road safety play an outsized role for sustainable transportation users, as pedestrians and cyclists are significantly more vulnerable to suffering death or serious injury in a collision. While pedestrians and cyclists combined only account for approximately 7% of commuter trips, they account for nearly 20% of traffic fatalities in Canada (9). Further, pedestrian deaths in Canada have actually increased 6% since 2014, consistent with the trend in the USA (9; 10).

Governments around the world have begun implementing Vision Zero strategies, which aim to prioritize human health and safety by eliminating all traffic-related fatalities and serious injuries. Vision Zero represents a paradigm shift in the approach to road safety and can have significant positive results (11; 12).

3. Challenges and Opportunities

Canadian municipalities face significant challenges to enabling a meaningful shift towards sustainable transportation and eliminating traffic-related fatalities and serious injuries, but there are many opportunities for improvement.

This section touches on these challenges and opportunities.



3.1 Land Use

Transportation and land use planning are inextricably connected, with land use patterns dictating how people move around cities and regions.

Challenges

- More than two-thirds of Canadians live in suburbs, and the vast majority of population growth is occurring in these areas (13). Suburbs are typified by low-density, automobile-oriented development.
- Jobs have been moving away from the city centre in large metropolitan areas, leading to longer commutes to, within, or between suburbs (14). Long commutes have negative impacts on personal health, productivity, congestion, greenhouse gas emissions, and roadway infrastructure (15).

Opportunities

- The "Five Ds" of the built environment – Density, Diversity, Design, Destination, and Distance to transit – have been found to promote walking, cycling, and transit while reducing motor vehicle trips, especially when multiple measures are combined (16; 14).
- Planning on a regional basis and creating compact, transit oriented 'Urban Centres' to accommodate growth and combat urban sprawl (e.g. Metro Vancouver) (17).
- Designing interesting and attractive neighbourhoods with a range of pedestrian-scale amenities can encourage people to get out of motor vehicles and experience the street on foot or by bike (18).



3.2 Demographics

Canada's population is rapidly growing and ageing, which presents challenges in servicing growth and development, impacting mobility patterns and accessibility.

Challenges

- Between 2018 and 2068, Canada's population is projected to increase from 37.1 million in 2018 to 55.2 million people (19).
- The proportion of seniors (aged 65 and over) is set to increase from 17.2% in 2018 to between 21.4% and 29.5% by 2068 (19).
- Seniors and older adults travel less for commuting purposes, have more mid-day and shorter-distance travel patterns, and may be more reliant on alternatives to driving motor vehicles. They are also overrepresented in traffic fatalities and serious injuries (9).

Opportunities

- Directing population growth to communities with land uses conducive to sustainable transportation.
- Designing universally accessible transit and active transportation networks that function for people of all ages and abilities. This can help seniors maintain a greater level of mobility, increase their access to services, social networks, and recreation, and increase their physical activity (20).



3.3 Public Health

Canada is facing a public health crisis, with increasing levels of overweight and obese Canadians – and public health costs – over the past several decades. In 2009, the estimated total health care cost of physical inactivity in Canada was \$6.8 billion (21).

Challenges

- Only 20% of adults and 10% of children and youth meet the Canadian Physical Activity Guidelines for physical activity per day or week (22). Seniors have also been found to be less physically active than adults (23). Physical inactivity is one of the main leading risk factors for global mortality and is an underlying factor for many chronic diseases (24).
- Long commutes have been shown to negatively impact physical and mental health, safety (due to increased risk of collision), family relationships, and social capital (15). People commuting by motor vehicle are more likely to be negatively impacted than people with long transit commutes (15).

Opportunities

- Improving active transportation networks has been shown to improve both physical and mental well-being and to prevent weight gain and obesity (25; 26). These benefits far outweigh the dangers posed by exposure to air pollution and risk of collision (27).

- Implementing transportation demand management (TDM) and Active School Travel (AST) programs can help to develop healthy travel behaviours, especially when combined with infrastructure improvements (28; 29).
- Partnering with health agencies and other stakeholders to research, promote, and fund improvements to transit, active transportation networks, and community design.



3.4 Climate Emergency

Governments around the world – including many Canadian municipalities – have declared a climate emergency (30; 31). The transportation sector is the second largest emitter of greenhouse gases, contributing 24% of Canada's greenhouse gas emissions in 2017 (32).

Challenges

- Between 1990 and 2017, transportation-related greenhouse gas emissions have increased by 43% (32)¹. Total passenger vehicle emissions made up 54% of transportation-related emissions in 2017 and have increased by 32% since 1990 (32).
- Climate change is contributing to an increase in severe weather events, which have significant economic impacts a significant impact on the Canadian economy (33; 34).

Opportunities

- Funding and designing sustainable transportation networks will help meet climate goals by reducing vehicle kilometres driven and greenhouse gas emissions.
- Active transportation users have approximately one-tenth the ecological footprint of a person who commutes by motor vehicle (35).
- Transit optimization makes transit a more attractive and efficient transportation mode, attracting people to switch from motor vehicles. The electrification of transit vehicles will make an already efficient transportation mode even more sustainable.



3.5 Cost of Congestion

With a growing population and continued reliance on motor vehicles, congestion is becoming a significant environmental and economic issue that impacts the efficient and reliable flow of people, goods, and services.

Challenges

- The direct annual costs of congestion amount to \$7 billion in Toronto, \$1.7 billion in Greater Montréal, and \$1.4 billion in Metro Vancouver (36). Costs in Toronto are projected to rise to \$15 billion annually if no action is taken (36).
- Hidden costs imposed by forgone trips have comparable economic impacts to direct congestion costs in major Canadian cities (36).

¹This increase is due to more vehicles on the road, an increase in total trips, and changes in vehicle fleet composition. Improvements in fuel efficiency have been unable to keep pace with the increasing preference for light trucks and sport utility vehicles (32).

- Over 90% of Canadian consumer goods transported by truck, and goods movement is severely impacted by congestion (36).
- Congestion impacts the frequency and reliability of transit, necessitating significant increases in operating costs just to maintain existing service levels. For example, TransLink estimates that over \$75 million in costs per year (12% of annual bus operating costs) are attributable to congestion (6).

Opportunities

- Mobility pricing – a coordinated approach to paying for mobility that includes road usage or decongestion charging – can help to manage congestion, encourage the use of transit and active transportation, and generate revenue for the transportation system while improving travel times and reliability for people who continue to drive. Successful mobility pricing systems have demonstrated 15-20% reductions in traffic and approximately 33% reductions in congestion (37).



3.6 Equity

Certain groups tend to be more negatively impacted by inequities in the transportation system, including children, youth, seniors, single parents, women, people with low incomes, ethnic minority populations, and people with disabilities (38; 39). A lack of access to transportation services can limit individual economic development and cause social exclusion (40; 38).

Challenges

- Transportation costs are second only to housing as a percentage of household spending in North America (41). Transportation spending is disproportionately high among low- and moderate-income families.
- The annual cost of owning and operating vehicle can be a barrier for many groups (42; 43), children and youth are not yet allowed to drive motor vehicles, and seniors have reduced abilities to drive.

Opportunities

- Designing transportation networks using the Gender-Based Analysis Plus (GBA+) lens, which considers sex, gender, race, ethnicity, age, religion, and mental or physical disability (44).
- Providing subsidized transit (concessionary fares) for youth, students, and people with low incomes can help gain ridership and increase mobility.



3.7 Emerging Trends

Transportation systems are undergoing a revolution thanks to the introduction of 'new mobility' options, including shared mobility systems, the electrification of transportation, the advent of autonomous technology, and Mobility-as-a-Service (MaaS) platforms.

Challenges

- The implementation of autonomous technology carries significant uncertainty regarding timelines, the extent of automation, and whether ownership will be shared or private. Thoughtful policy making is required in order to avoid negative externalities.
- There is evidence that ride hailing is contributing to congestion in urban centres. For example, San Francisco experienced a 60% increase in congestion between 2010 and 2016 (45; 46). Studies also show that up to one-third of ride hailing trips would otherwise have been taken using transit or active transportation (45).
- The majority of 'new mobility' services are operated by private companies, which exposes municipalities to market fluctuations and private business decisions (e.g., Share Now pulling out of North America (47)). Municipalities need to create regulatory policies to manage private partnerships and integrate emerging modes into the sustainable transportation network.
- There is increasing competition for curb space in urban environments, with on-street parking, bicycle facilities, goods and service delivery, ride hailing, and pedestrian facility improvements all vying for space.

Opportunities

- Shared mobility systems, including bikeshare, scootershare, and carshare, can be used as a first- and last-mile solution to help connect users to transit.
- The growth in electric bicycles (e-bikes) for personal transportation and goods movement has opened up new markets for active transportation.
- On-demand transit service has the potential to provide flexible service that can be booked using an app, website, or phone. Example projects include Oakville Region, York Region, Halifax, and TransLink.
- Municipalities can partner with transit agencies, researchers, and other organizations to innovate the transportation network. Examples include electrifying transit and experimenting with integrated payment systems (48; 49).
- Innovations in monitoring and data collection enable the more advanced planning and management of transportation networks and infrastructure, including parking and mobility pricing.

4. Enabling Environment

Each municipality operates within a unique environment created by the interplay of programs, policies, and politics at all levels of government. This environment influences the planning, funding, and implementation of transportation projects.

This section describes the enabling environment for transportation policy and programs.

4.1 Supportive Policies and Incentives

National Level

Canada has a national transportation plan called "Transportation 2030," a broad strategic plan covering all aspects of the transportation network (50). However, numerous advocates and municipalities – including a FCM members' resolution approved in 2018 – have called for a more detailed National Active Transportation Strategy or Policy, which would help direct increased funding and attention to active transportation projects across the country, update policies and available data and address coordination challenges (51; 52; 53).

A number of other countries have similar strategies, such as:

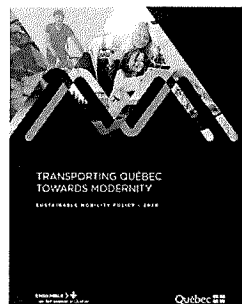
- Australia: National Cycling Strategy (2011-2016) (54)
- France: National action plan for active mobility (Plan d'action mobilités actives – PAMA) (55)
- Finland: National strategy for walking and cycling 2020 (Kävelyn ja pyöräilyn valtakunnallinen strategia 2020) (55)

The European Union has a number of urban mobility policies, programs, and funding opportunities available to their member states, with a strong focus on clean transportation and road safety (56). Specific funds include EU structural and investment funds (ERDF, ESF, Cohesion Fund) as well as technical/advisory services for grants and loans. Cohesion funds are similar to equalization payments in Canada, where richer member states help support projects in poorer member states.

Provincial Level

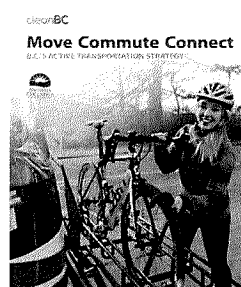
The level of support and funding for transportation at the provincial level varies widely across Canada. Some examples of provincial sustainable transportation policies are provided below:

- Québec: Québec is at the leading edge of sustainable transportation policy, having adopted a Sustainable Mobility Policy in 2018. This integrated mobility policy covers all aspects related to passenger and freight



mobility and sets ambitious targets for access to mobility, travel times, road safety, GHG emissions, and costs for individuals and businesses (57). The 2018-2023 action plan is based on this policy and includes added funding to improve transit operations, with a target of increasing the public transit service offering by 5% per year. A variety of provincial funding programs support the implementation of this policy, including SOFIL (Société de financement des infrastructures locales du Québec), which is currently supporting the electrification of buses in Québec.

- British Columbia: BC recently adopted “Move. Commute. Connect. B.C.’s Active Transportation Strategy,” is the first strategy of its kind in BC. Released in 2019, the strategy sets out to double BC’s province-wide active transportation mode share by 2030 and work towards Vision Zero by identifying a number of short-, medium-, and long-term actions (58). One action was to provide additional funding opportunities through the redesigned Active Transportation Grant Program. This program supports municipalities of all sizes and is set up to provide a larger proportion of cost-share funding for rural and Indigenous communities, to help them improve their networks.
- Ontario: The Dedicated Ontario Gas Tax Funds for Public Transit Program supports both capital and operating expenses, giving municipalities much-needed flexibility. The fund is formula-based – 70% based on ridership and 30% on population – which rewards high ridership but also allows for transit expansion in growing communities. The Ontario Gas Tax for Transit program had been scheduled to be doubled from two to four cents per litre starting in 2019. However, in the 2019 Ontario Budget, the Ontario Gas Tax expansion was cancelled by the provincial government (59).



Regional Level

Regional-level planning can be hugely advantageous for coordinating transportation across large, linked regions. Regional governance structures vary widely across the country. TransLink is an excellent example of regional planning and integration. TransLink’s service area covers all of Metro Vancouver, which is home to nearly 2.5 million people across 21 municipalities, one Electoral Area, and one Treaty First Nation. TransLink is overseen by a Mayors’ Council composed of representatives from each of the 23 member communities and works in parallel with Metro Vancouver to coordinate regional land use and transportation planning.

TransLink also has a multi-modal mandate, making it distinct from many other transit agencies. In addition to transit, it coordinates regional planning for the major road network, active transportation, and goods movement, and provides funding support for building and maintaining regionally significant infrastructure. The funding is contingent on providing high-quality infrastructure in strategic locations, helping to ensure a coordinated and consistent multi-modal transportation network.

This regional, multi-modal approach has proven effective in other jurisdictions as well. In London, England, Transport for London (TfL) has authority over the region's rail-based transit, streets, bicycle facilities, and pedestrian infrastructure, and is in charge of implementing the city's congestion charge (60). The San Francisco Municipal Transportation Agency (SFMTA) also has authority over the majority of the streets, sidewalks, and rails in the city, including parking and taxi services (60).

While regional coordination is often seen in larger urban areas, it can also be beneficial for smaller communities. In Germany, small and mid-sized cities often form regional associations to share in cost of planning and operating transportation networks. The largest alliance is the Rhein-Neckar-Verkehr GmbH, an alliance of five transit agencies operating in three middle sized cities (Heidelberg, Mannheim and Ludwigshafen) and the surrounding urban region (61).

4.2 Transportation Funding

Funding Considerations

A lack of consistent, stable, and predictable funding for transportation, is a major challenge and can be a barrier to advancing priority projects while simultaneously meeting state of good repair needs of the existing transportation network.

At the municipal level, capital project funding typically comes from general revenue and is allocated through a 5- to 10-year capital planning process that sets priorities for all areas of municipal responsibility including but not limited to transportation. Funding also comes from provincial and federal contributions, advertising revenues, and fares in the case of transit.

Federal contributions take the form of annual transfers through the permanent federal Gas Tax Fund, which provides \$2.2 billion annually in predictable transfers for municipal capital projects across a variety of assets including local roads and transit, and project-specific grant funding through the Investing in Canada Plan. Many Canadian cities apply federal Gas Tax Fund transfers towards transit in particular fleet renewal and state of good repair. The \$20.1 billion Public Transit Infrastructure Stream of the Investing in Canada Plan, ending in 2027-28, supports a range of capital projects with a focus on major rapid transit expansion projects with predictable funding provided to all transit systems. Improvement and rehabilitation of public transit infrastructure, and active transportation projects are also eligible. The Public Transit Infrastructure Fund announced in Budget 2016 invested another \$3.4 billion in transit and active transportation projects.

Provincial contributions vary by province, but typically include capital grants including matching funding for federal funding under the Investing in Canada Plan. Many provinces provide some form of operating funding for transit systems in addition to supporting capital projects. The federal government does not provide any funding for transit operating costs.

The predictability and overall level of funding have a significant impact on long-range planning and implementation. For example, an examination of public transit in Scandinavia found that the region's higher levels of revenue for transit has contributed to high quality service and high ridership (62), underlining the importance of adequate funding.

The level of investment in each transportation mode is also important to consider. Traditionally, the vast majority of municipal transportation budgets go towards roadway projects, and in large cities, transit expansion and state of good repair, with only a small portion dedicated to transit optimization and active transportation. Increased funding for active transportation can go a long way, as walking and cycling infrastructure can be relatively cost-effective compared to road projects (63; 64).

Because infrastructure plays such a large role in increasing mode share, the level of investment is often directly related to mode share. For example, British Columbia spends approximately \$1.50 per person each year on active transportation, which has resulted in a province-wide cycling mode share of only 2.5% (65). By comparison, the Netherlands invests \$48 per person annually on active transportation programs and has cycling and walking mode shares of 27% and 18%, respectively (65; 66). Meanwhile, Denmark spends \$34 per person annually and has an overall cycling mode share of 16%, and 26% of all trips under five kilometres are completed by bicycle (65; 67).

Another consideration is the difference in funding support for capital costs compared to operating and maintenance costs. When capital projects are approved, there is not always an accompanying increase in the operations and maintenance budget. This can be exacerbated by federal and provincial funding programs that focus on capital projects while leaving municipalities fully responsible for lifecycle operating and maintenance costs. This can put a strain on municipal budgets that now may need to operate and maintain an expanded transportation network with no additional funding if not properly planned for.

The Canadian Urban Transit Association (CUTA) has reported that there is a direct relationship between operating funding, revenue service hours, and ridership: for every 10% increase in service operating budget, ridership is expected to increase by 5.5% (68).

Alternate Funding Mechanisms

There are a number of strategies that can help to increase funding predictability and cover both capital and operating costs. CUTA released a report in 2015 detailing a number of alternate funding mechanisms, including user-based charges, vehicle ownership charges, land value capture, land-based charges, non-user-based charges, and other charges (69). A few examples are briefly outlined below.

- Dedicated reserve funds: allow municipalities to be proactive, rather than reactive, when planning and implementing transportation projects. Toronto's City Building Fund is an example of a property tax levy that raises funding for major transit and

housing capital initiatives (70). Quesnel and Port Moody, in BC, also have tax levies set aside for asset renewal work, including roadwork and sidewalks (71; 72).

- **Taxation revenue:** Taxation represents an effective and consistent form of revenue but can be very challenging to implement from a political perspective. TransLink, for example, receives approximately 50% of total revenue from a regional fuel tax, a property tax, and levies on hydro and parking (73). Value capture strategies – capturing location-based value accrued by transportation systems – can also be used under the taxation umbrella to fund transit expansion and operations (60). San Francisco gets 25% of its operating budget from parking revenues and also imposes a value capture based impact fee on development that is projected to raise \$1.2 billion over 30 years for transit vehicles, transit optimization, and active transportation infrastructure (74). The Halifax Local Transit Tax applies to all residential and resource properties within a one kilometre walk of a transit stop to fund Metro Transit's conventional services, including adding new routes and service schedules, and it covers roughly 30% of the annual conventional transit service expenses (69). Paris, France has a transport tax on income (Versement Transport), which supports both capital and transit operating expenses, providing 40% of the Paris Transport Authority (STIF) budget (69).
- **Mobility Pricing:** is a suite of fees for using transportation services, such as transit fares, road/bridge tolls, road usage charges (i.e. congestion pricing), and any other fees associated with moving people or goods. The fees collected can be invested into improving the transportation system. Stockholm's congestion tax was implemented in 2007 and covers both capital and operating costs, with annual revenues estimated to be around \$131 million CAD (69; 75). Canadian municipalities and transit agencies are currently studying the implementation of congestion pricing (37).
- **Development-related Charges:** (e.g. Development Charges, Development Cost Charges (DCCs), impact levies, and off-site levies) can be put towards transportation projects, although not all transportation infrastructure and costs are eligible. For example, in BC, DCCs can fund capital costs for a range of projects (e.g. transportation planning, sidewalks and other pedestrian facilities, bicycle infrastructure, and transit provisions), but neither operating costs nor equipment such as buses may be funded.
- **Matching Capital and Operating Increases:** As noted above, new capital projects can often strain operating and maintenance budgets. Policies can be created at the municipal level to ensure that operating budgets increase proportionally with capital projects. For example, Coquitlam, BC has a standing policy stating that anytime council approves a new capital expense, the operating budget must be increased by a certain percentage to accommodate the growth.

4.3 Asset Management

Asset management is an integrated, collaborative business approach involving planning, finance, engineering, maintenance and operations by which municipalities manage their assets to achieve an optimal balance between the community's service

expectations and their willingness and capacity to pay for the infrastructure and land assets that underpin these services.

Proper asset management is integral in the expansion and maintenance of a transportation network. Municipalities that have managed their assets according to asset management best practices tend to have increased flexibility and capacity for expanding transportation services, creating a more positive enabling environment. Asset management is key for not only preserving existing levels of service on all types of transportation infrastructure, but also for being able to expand that level of service to better serve the community.

Additionally, proper asset management is necessary for managing risk associated with municipal infrastructure, including planning ahead for potential negative impacts that could affect the transportation network. For example, municipalities should consider the impact of climate change-induced sea level rise and storm surges with respect to the construction of waterfront pathways. Committing to asset management at a municipal level ensures that cities are properly set up to enable safe, sustainable transportation.

4.4 Common Standards and Design Guidelines

A wealth of additional design guidance exists at the local, national, and international levels for building active transportation facilities, optimizing transit, and improving road safety. However, no design or accessibility standards exist at the national level in Canada, and it can be challenging for designers to access available and relevant resources that meet the unique needs of their city or project. This lack of standardization results in inconsistent user experiences in transportation networks across the country.

The Transportation Association of Canada (TAC) has produced a suite of national guidelines, including the [Geometric Design Guide for Canadian Roads](#) and the [Manual of Uniform Traffic Control Devices for Canada](#), that serve as the primary resource for Canadian planners and engineers. TAC guidelines provide an excellent starting point for designing transportation infrastructure, but do not cover all of the nuances of active transportation and transit design.

Other groups such as CSA Group and Transport Canada also provide national-level guidance on a diverse range of topics, including accessibility, rail crossings, safety for cyclists and pedestrians around heavy vehicles; however, no comprehensive national active transportation or transit design guidance currently exists.

At the local, regional, and provincial levels, there are a range of designs that have been developed by municipalities, regional districts, provincial governments, transit agencies, and civil society groups. While some of this design guidance is broadly applicable across Canada, other elements have been written for specific regulatory and geographic contexts, including:

- [British Columbia Active Transportation Design Guide](#)

- [British Columbia Community Road Safety Toolkit](#)
- Ontario Traffic Manual Book 18: Cycling Facilities ([current version](#) and [update in progress](#))
- Vélo Québec: Aménager pour les piétons et les cyclistes (Planning and Design for Pedestrians and Cyclists) ([2010 edition – English](#); [2019 edition – French only](#))

In the United States, the Americans with Disabilities (ADA) Act and [ADA Standards for Accessible Design](#) set a high bar for accessibility, helping provide consistency and accessibility in the pedestrian transit networks in particular. Additionally, the Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials (AASHTO), and other groups provide national-level guidance for the development of transit and active transportation facilities.

The National Association of City Transportation Officials (NACTO) provides guidance at a North American level with publications such as the [Global Street Design Guide](#), [Transit Street Design Guide](#), [Urban Bikeway Design Guide](#), [Designing for All Ages & Abilities](#), and [Guidelines for Regulating Shared Micromobility](#), among others.

Internationally, there are examples of both local and national-level guidelines and standards that help to provide a consistent experience for transit and active transportation users. The Netherlands' [CROW Design Manual for Bicycle Traffic](#) is considered international best practice. The Cycling Embassy of Denmark released the [Collection of Cycle Concepts 2012](#), while the City of Copenhagen published the [Focus on Cycling: Copenhagen Guidelines for the Design of Road Projects](#). Other cities, including London, Auckland, Melbourne, Boston, and many others, have their own transit, active transportation, and complete streets guidance that can serve as examples for Canadian municipalities.

4.5 Transportation Data

Data collection and analysis is crucial for enabling transportation professional to make informed decisions, monitor progress, and share results with the public and decision makers. Transportation data collection methods include:

- **Census Data:** Statistics Canada conducts the Canada Census every five years. An important limitation of census data is that it only includes commute trips to work or school and does not include any other types of trips (e.g. shopping, recreation, accessing services, etc.). Census data can be used to determine the effectiveness of transportation-related investments at a city-wide or neighbourhood-scale but cannot be used to monitor use on individual corridors. Civic censuses are also undertaken by some municipalities and can include transportation data.
- **Travel Diary Surveys:** Conducted in many communities to gather travel patterns and behaviour data, typically over a 24-hour or longer period. The data collected includes transportation mode, origins and destinations, trip purposes, trip start and end points, and day of travel. Examples include the TransLink Trip diary, the City of

Vancouver Transportation Panel Survey, and the Transportation Tomorrow Survey in southern Ontario.

- **Cordon and Corridor Counts:** Involves establishing a cordon around a designated area and collecting data on how people travel into and out of the cordon during a set period. This technique can examine entire areas (e.g. a downtown core) or can be corridor- or location-specific. Count techniques include manual counts, video and infrared detection, radar sensors, and physical detection (e.g. piezoelectric strips or pneumatic tubes).
- **Big Data:** There have been significant technological advancements in collection and storage of data. Data from smart transit cards, GPS-based applications, mobile phone positioning, social media data, image data (e.g. satellite imagery and land-based video), and shared transportation services such as bike share, car share, and ride hailing can all be useful for transportation professionals (79). However, there remain questions regarding the application and ownership of this data, with much of it coming from private individuals and businesses.

Additionally, municipalities can partner with external partners such as health districts, insurance, and police to secure data on motor vehicle collisions and health outcomes. This data is especially crucial for identifying ways to improve road safety and underlines the importance of developing strong multi-disciplinary partnerships.

Internationally, there are other examples of data sharing that could benefit Canadian municipalities (80), including:

- **CitiesACT:** an online database providing access to climate change, Air quality, transportation, and energy data and indicators for Asian cities and countries, with data compiled from international and national statistical sources, national and local statistical yearbooks, surveys, secondary data sent by network partners, and correspondence with national ministries. Learn more at citiesact.org.
- **European Platform on Mobility Management (EPOMM) – TEMS Modal Split Tool:** An online tool allowing access to transportation mode share data from over 250 cities across Europe. Users can select a city from the map or compare a group of cities using the search options in the menu. Learn more at epomm.eu/tems/.
- **Korea Transport Database:** National system that comprehensively manages and analyzes transportation statistics and surveys to help inform national plans and policies. Includes transport demand forecasts and a “KTDB Lab Platform” that utilizes big data to bring together data from a number of sources. Learn more at ktdb.go.kr/eng/index.do.

4.6 Public Support

As noted in **Section 2.0**, most big Canadian cities are still automobile-oriented, with all but Toronto, Montréal, and Vancouver seeing at least two-thirds of commute trips being made by motor vehicle. This reliance on the motor vehicle results in a pervasive driving culture in most Canadian cities. Encouraging a shift to sustainable forms

of transportation is not only behavioural change but can also be a difficult cultural change that is often perceived as a challenge to the status quo. Furthermore, relatively short political cycles can make the implementation of long-term transportation plans challenging, especially when a change in government occurs and priorities and funding are shifted.

The preference for driving can lead to public, political, and media pushback against transportation measures with actual or perceived negative impacts on motor vehicle travel. Installing bicycle infrastructure can be particularly contentious, with many examples of municipalities struggling to gain support for projects or seeing bicycle facilities being removed retroactively due to pushback (e.g. Saskatoon and Edmonton).

The implementation of dedicated transit lanes has proven to be just as challenging in many jurisdictions, from Vancouver to Saskatoon to Montréal. Furthermore, transit use is still stigmatized in many cities, especially outside of Vancouver, Toronto, and Montréal in cities with lower transit mode share.

The removal or redistribution of motor vehicle parking is often necessary in order to reallocate road space for sustainable transportation. This process is highly contentious amongst residents and businesses. Business owners tend to overestimate the number of customers that arrive by motor vehicle (81).

There are signs of culture change occurring. North American studies suggest younger generations have lower car ownership rates than previous generations. Additionally, the rise of a new generation of Canadians who are demanding increased government action on the climate crisis, and who desire seamless multi-modal transportation options, will make it easier to gain political support for bold transportation initiatives. Municipalities can engage this group to build and spread support for projects.

5. Policy Solutions and Implementation Strategies

Implementing transportation measures that improve transit, active transportation, and/or road safety can be extremely challenging, as outlined throughout this report. However, there are many examples of successfully implemented transportation plans, policies, and strategies that can inspire meaningful change in Canadian municipalities.

The following section summarizes overarching lessons from national and international research and outlines specific lessons learned for each of the three mobility themes. A summary of select case studies is provided in the **Appendix**.

5.1 Overarching Lessons

A number of common elements emerged through the jurisdictional scan, bridging the different topics and projects. The following underlying lessons have proven to be effective in creating bold, meaningful change to transportation networks across the world.

Pilot Projects

Pilot projects have proven effective across all types of transportation projects examined. Pilot projects can be used to implement new transportation enhancements in a rapid, cost-effective, and temporary manner, without requiring the same level of capital investment or public support. This minimizes political risk and allows municipalities to showcase the benefits of a project in real life, helping to win over skeptics. Additionally, pilot or promotional programming – such as free bikeshare signup or free transit to and from special events – may be offered to attract new users.

Data Collection (Monitoring, Evaluation, and Adaptation)

Data collection is a crucial component of transportation planning and design. When implementing both pilot and permanent projects, municipalities are most successful when they monitor the impact of their projects by collecting data. This data must then be analyzed, with the results shared publicly to share successes and ensure transparency. Once the project is evaluated, it should be adapted as needed to improve performance. This is especially relevant for pilot projects and can make the difference for ensuring that they become permanent.

Coordination of Transportation and Land Use Planning

The interconnectedness of land use and transportation was evident across all projects. Transit and active transportation projects are most successful where land use and transportation planning have been coordinated, creating environments that are conducive to multi-modal transportation.

Meaningful Multi-Disciplinary Partnerships

Transportation planning is by nature a multi-disciplinary exercise that cannot be carried out in a silo. Municipalities that are able to partner with a wide range of stakeholders, including different levels of government as well as civil society groups, health districts, law enforcement, business improvement districts, the general public, and others, have had the most success in creating positive impacts.

Long-Range Vision and Execution

Transportation systems do not improve overnight – it can take time, patience, and determination to see meaningful system-level change. To be successful, municipalities must execute a long-range vision, which can be challenging across changing governments and capital budget cycles. It is important to identify small successes along the way, using them to build momentum and applying those lessons on a system-wide scale.

5.2 Transit Optimization Lessons

- Specific transit corridors and networks that provide efficient, comfortable, and reliable service have seen major ridership growth, while many transit systems as a whole are struggling to maintain ridership.
- Giving transit priority over passenger vehicles along key corridors creates conditions that lead to increased transit ridership. Reallocating existing right-of-way to transit priority through dedicated transit lanes or other transit priority measures is the most cost-effective way to increase the overall capacity of the corridor and leads to more reliable travel times. Creative approaches can be used to reallocate existing right-of-way (e.g. Gatineau Rapibus BRT case study in **Appendix**).
- Minimizing motor vehicle traffic and turning movements improves pedestrian conditions along transit corridors and creates a more attractive pedestrian environment.
- Data collection and analysis is essential to finding opportunities to optimize bus transit corridors and networks.
- Policies that target youth and students can expand transit ridership by attracting new users and creating sustainable transportation habits.

TRANSIT OPTIMIZATION CASE STUDIES IN THE APPENDIX:

Click the titles to jump to the case study in the Appendix

1. City of Gatineau: Rapibus Corridor

A dedicated, 12 km. BRT corridor that makes use of an underutilized rail right of way.

2. City of Toronto: King Street Transit Pilot

A streetcar priority corridor in downtown Toronto, created by implementing motor vehicle movement restrictions, reallocating on-street parking, and upgrading and repositioning transit stops.

3. City of Kingston: Transit Route Optimization

Dramatic shift in transit ridership after making a number of changes to the transit network.

4. City of New York: B44 Bus Line

Improved speed and reliability of a major north-south route in Brooklyn by implementing off-board fare collection and dedicated bus lanes, consolidating bus stops, and rerouting of the northbound routes.

5.3 Active Transportation Lessons

- A complete and connected network of bicycle facilities is required to see a significant increase in cycling mode share.
- Cities that have focused on infrastructure in the areas of highest demand (such as downtown cores) have seen greater success than investments in lower density suburban areas, particularly if those facilities do not have broader connections to the active transportation network.
- Focusing on safe, comfortable, convenient, and connected networks of All Ages and Abilities bicycle facilities can see significant gains in ridership and encourages more diverse cyclists.
- Physically separated facilities are required on corridors with high traffic volumes. Best practice guidance on when physical separation is required varies between provincial, national, and international design guidelines.
- Rapid implementation at a network level is more effective in increasing ridership than building projects in isolation. Pilot projects are an effective way to reduce the implementation time of on-street protected bicycle lanes and can help build support for changes to the street design.
- Robust active transportation networks connected to an efficient transit network leads to people making multi-modal trips, linking walking, cycling and transit.
- Transit-oriented development hubs provide a major opportunity for large walking and biking mode share on a neighbourhood level. Ensuring mixed-use land use and high-quality active transportation facilities creates an inviting environment.
- Winter maintenance is essential to creating an environment that supports and encourages walking and biking throughout the year.
- Implementation costs for a network of protected bicycle facilities is orders of magnitude smaller than other transportation infrastructure capable of moving similar volumes of people, such as mass transit or road widening.

ACTIVE TRANSPORTATION CASE STUDIES IN THE APPENDIX:

1. City of Calgary: Centre City Cycle Track Pilot

Click the titles to jump to the case study in the Appendix

18-month pilot project that installed four on-street cycle track corridors that created a grid network 6.5 km in length through downtown Calgary.

2. City of Montréal: Protected Bicycle Network

The City of Montréal more than doubled the number of kilometres of the network since 2009 from 400 km to over 875 km, with more than 400 km maintained through the winter.

3. City of Seville: Protected Bicycle Facilities

Rapid implementation of a protected bicycle network, with an 80 km grid built in 18 months for a total of 180 km.

5.4 Road Safety Lessons

- Vulnerable road users, such as people walking and cycling, are disproportionately killed and injured by traffic collisions and need special consideration when looking at street design.
- Data is crucial to understand the causes and locations of KSIs, and to learn if interventions are leading to safer streets. Strategic partnerships, ongoing communication, and data sharing between various stakeholders is essential.
- Bold changes are required to see significant reductions in KSI collisions. This can require making difficult trade-offs, such as prioritizing human safety over convenience (e.g. removing on-street parking to install protected bicycle infrastructure).
- Reducing motor vehicle travel speeds and limiting the amount of traffic is the most effective way to improve road safety for all road users.
- Road pricing has been effective at reducing traffic volumes and leading to safer streets.
- Pilot projects to improve road design at problematic locations is an efficient way to quickly improve the safety of dangerous locations without requiring extensive public consultation and slow implementation times. Examples range from corridor wide improvements to temporary traffic calming curbs like used in Calgary to create curb extensions with a physical barrier in an affordable and quick manner.
- Adequate funding is essential to making meaningful change. Vision Zero plans are a good starting point, but without sufficient budget to implement the plans and construct infrastructure improvements, these plans will have limited success.

ROAD SAFETY CASE STUDIES IN THE APPENDIX:

Click the titles to jump to the case study in the Appendix

1. City of Edmonton: Vision Zero

Traffic-related fatalities decreased by 41% in the first three years after adopting Vision Zero, while serious injuries decreased by 17%.

2. City of Oslo: Vision Zero

Political support for road safety initiatives and major changes to the street network led to a single recorded motor vehicle fatality in 2019, and no pedestrian or cyclist fatalities.

3. City of Montréal: Vision Zero

Road safety improvements from Montréal's 2008 transportation plan led to a 50% reduction in KSI collisions between 2008 and 2014, and the city recently adopted a Vision Zero action plan with the target of eliminating all traffic-related fatalities.

6. Next Steps

This Framing Report will be used to facilitate and spark conversation at the upcoming Urban Project event in Gatineau, Québec on February 7th, 2020. Following the Urban Project event, a Summary and Action Report will provide an overview of the event and outline the most promising solutions identified. The intent is to provide city leaders and decision-makers with a toolkit of solutions that will help to enact change in their communities, including creating safe, sustainable, inclusive, efficient, and cost-effective transportation systems.

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Appendix A: Case Studies

Transit Optimization Case Studies

City of Gatineau: Rapibus Corridor (79)

The City of Gatineau's Rapibus is a dedicated, 12 km. BRT corridor that runs through Gatineau, making use of an underutilized rail right of way to provide a connection from the eastern neighbourhoods through the city and to Ottawa (80),

Over the first five years, Rapibus successfully increased ridership by 17%, improved service reliability, and eased congestion on city roads.

Key Takeaways:

- Partnerships between municipal, regional, and provincial governments key to future development and corridor connectivity.
- Repurposing existing underused rail right of way can be an efficient way to create a dedicated transit corridor.
- Corridor focused on new service areas instead of improving existing service on current routes.
- Route modifications since the launch of Rapibus during off peak times and in suburban areas with less congestion improved service by creating more direct routing and quicker travel times during off peak hours.

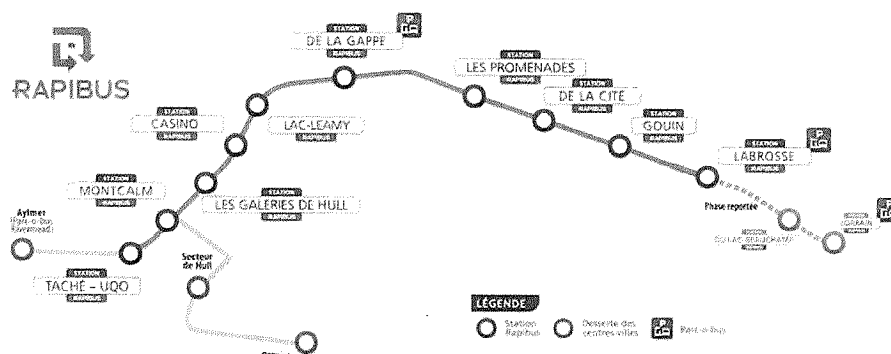


Figure 1 - Rapibus Route (Source: STO)

Learn more at:

sto.ca/index.php?id=467

City of Toronto: King Street Transit Pilot

The King Street Transit Pilot created a streetcar priority corridor in downtown Toronto by implementing motor vehicle movement restrictions, reallocating on-street parking, and upgrading and repositioning transit stops. The pilot became permanent in 2019 (81). This pilot successfully led to a 17% increase in all-day weekday ridership and 80% reduction in traffic volume, improved reliability, reduced trip times, and created 45 new curbside public spaces.

Key Takeaways:

- Introducing this major shift as a pilot project was key in achieving implementation
- Robust data collection using GPS, Bluetooth, and video analytics, along with detailed reporting, helped showcase the benefits of the pilot project and made the case for permanent adoption
- Creating side benefits, such as public realm improvements and improved cycling environment, helped drive support
- Partnering with business along the corridor to waive the fee typically associated with parklet implementation generated buy-in from the business community

Learn more at:

toronto.ca/city-government/planning-development/planning-studies-initiatives/king-street-pilot/

City of Kingston: Transit Route Optimization (82)

The City of Kingston has seen a dramatic shift in transit ridership over the past 10 years after making a number of changes to the transit network and policies that support transit ridership.

These changes included:

- Four express routes that led to annual double-digit percent increase in transit ridership
- A tiered discount transit pass to employees of businesses enrolled in the Employer Transpass program
- Youths under the age of 14 ride for free without a pass or ID and a free transit pass to students in 9th grade
- Increased the cost of downtown parking to exceed the cost of a monthly transit pass
- A future program that will improve the speed and reliability of bus service with the implementation of bus bypass lanes.

Key Takeaways:

- Modified direct primary transit routes create shorter travel times with fewer stops that are more attractive to transit users.
- Developing programs and policies that support reduced concessionary fares for students and youths can have a major impact on current and future ridership.
- Alternative funding sources and / or external partnerships may be required to ensure concessionary fares are sustainable.

Learn more at:

<https://rdrn-pub.escribemeetings.com/filestream.shx?DocumentId=11403>

City of New York: B44 Bus Line (83)

New York City Transit and the New York City Department of Transportation worked together to improve the speed and reliability of a major north-south route in Brooklyn. Changes to the corridor included off-board fare collection, dedicated bus lanes, consolidation of bus stops, rerouting of the northbound route, and traffic improvements.

Key Statistics:

- Dedicated transit travel lane
- 15-31% improvement in travel times
- 10% increase in ridership on the route from 2014 to 2015, compared to a 1% decrease in overall bus ridership in Brooklyn during the same period
- 37% reduction of traffic injuries at intersections where crossing distances were shortened
- Passenger vehicle traffic speeds were maintained with a small reduction in traffic volume during the peak periods

Key Takeaways:

- Dedicated bus lane with improved speed and reliability led to major ridership growth along the corridor while network ridership decreased.
- Fare machines at transit stops reduced delays caused at stops with high number of boardings such as at mass transit transfer stations.
- Pedestrian safety improved by reducing the crossing distance, number of travel lanes, and through geometric improvements such as curb extensions.
- Overall travel time along the corridor was not impacted, due to improved design street that increased the efficiency of the remaining motor vehicle lanes.
- NACTO Transit Street Design Guide principles for a one-way transit corridor followed.

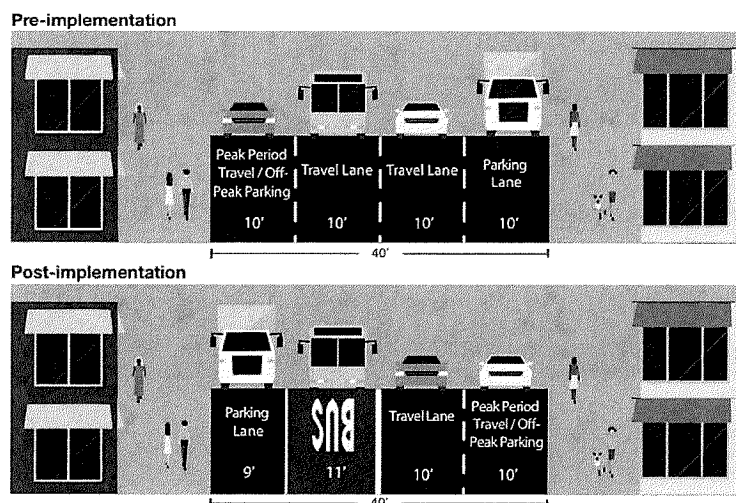


Figure 2 - Nostrand Avenue Cross Section (Source: B44 SBS Progress Report)

Learn more at:

nyc.gov/html/brt/downloads/pdf/brt-nostrand-progress-report-june2016.pdf

Active Transportation Case Studies

City of Calgary: Centre City Cycle Track Pilot

Calgary installed the Centre City Cycle Track Network Pilot Project in 2015 and demonstrated that AAA bicycle facilities can increase ridership and improve safety. The 18-month pilot project led to the rapid implementation of four on-street cycle track corridors that created a grid network 6.5 km. in length through downtown Calgary.

Even as the number of cyclists increased 142% between 2014 and 2016 (84), there was a 12% decrease in the number of collisions involving cyclists (84).

Key Takeaways:

- Pilot project approach allowed the updated street design to gain community and political support prior to requiring full approval from Council.
- Extensive before and after data allowed many of the benefits and impacts to be quantified
- Implementation of adjustable infrastructure allowed the City to modify the design where safety or operational challenges were identified.
- The proportion of women cycling downtown increased from 22% to 30% after the protected bicycle lane network was implemented showing the importance of building safe and comfortable facilities.
- Physical separation identified as important on roads with volumes over 8,000 ADT (average daily traffic).

Learn more at:

calgary.ca/Transportation/TP/Documents/cycling/City%20Centre%20cycle%20track/cycle-track-summary-report-nov-2016.pdf

City of Montréal: Protected Bicycle Network

The City of Montréal focused on expanding its cycling network and more than doubled the number of kilometres of the network since 2009 from 400 kilometres to over 875 kilometres, with more than 400 kilometres maintained through the winter. Montréal intends to continue to improve cycling infrastructure with the plan to develop a network of over 180 kilometres of express bikeways (réseau express vélo or REV) on 17 corridors throughout the city.

Key Statistics:

- Over 875 kilometres of bike facilities and counting
- More than 430 kilometres of bike facilities cleared through the winter months
- Bike share system with 6,200 bicycles, 540 stations and over four million trips annually
- 15% bicycle mode share target by 2032
- \$15 million annually allocated to cycling facilities

Key Takeaways:

- Building a connected, safe, and comfortable cycling network takes consistent and considerable funding to develop new corridors and maintain the entire network year-round.
- Physically protected bike lanes provide improved winter level of service with space for snow storage.
- Designs need to consider snow removal and maintenance to minimize service hours required for clearing.
- Winter maintenance should be priority-based to clear entire routes and give people cycling winter options.

Learn more at:

https://ville.Montreal.qc.ca/portal/page?_pageid=8957,143276111&_dad=portal&_schema=PORTAL

City of Seville: Protected Bicycle Facilities

The City of Seville rapidly built protected bicycle facilities in 2007, with an 80 km. grid built in 18 months for approximately €32 million (~\$47 million CAD) and a total of 180 km. now. At the same time, the City introduced a public bike share system with 2,600 bikes throughout the City.

Key Statistics:

- Cycling mode share grew to nearly 9% of all trips
- Cost of the first 80 km. of the network compared to the cost of 5 or 6 km. of highway
- Approximately 23% of daily trips are taken using bike share bikes.
- 5000 parking spaces removed to create space for the protected bicycle lanes
- Frequency of cycling collisions per trip has decreased

Key Takeaways:

- Political will allowed rapid implementation of extensive protected bicycle lane network.
- Public bike share system with 260 stations allows short trips to be conveniently made by bicycle.
- Significant funding committed to ensure a connected and protected network built quickly.
- Increase in cycling mode share directly responded to implementation of protected bicycle lane network.
- Seville built facilities quickly allowing designs to make some shortcuts to ensure the projects get built.
- Free public bikes provide to university students and at the main bus station.

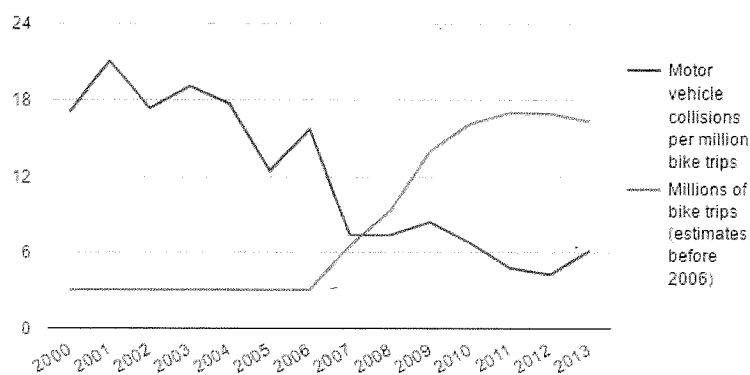


Figure 3 - Cycling Trips and Collisions (Source: R. Marquis & Hernandez-Herrador)

Learn more at:

theguardian.com/cities/2015/jan/28/seville-cycling-capital-southern-europe-bike-lanes

Road Safety Case Studies

City of Edmonton: Vision Zero

In 2015, Edmonton adopted Vision Zero through the implementation of its Road Safety Strategy (2016-2020), with a goal to reduce traffic fatalities and serious injuries to zero by 2032 (88). In the first three years since the adoption of Vision Zero Edmonton has seen success by tackling a wide range of engineering, engagement, enforcement, and education initiatives.

Key Statistics:

- Traffic-related fatalities decreased by 41% in the first three years after adopting Vision Zero, while serious injuries decreased by 17%.
- Major capital investment with nearly \$80 million allocated to road safety in 2018 alone.
- Comprehensive Safe Systems approach that focuses on Engineering, Education, Engagement, Enforcement, and Evaluation to create safe roads

Key Takeaways:

- City-wide road safety improvements take a multi-disciplinary approach to see continued progress.
- Community involvement and engagement is essential to create a culture of road safety.
- Many technological enhancements exist that can be leveraged to improve road safety.

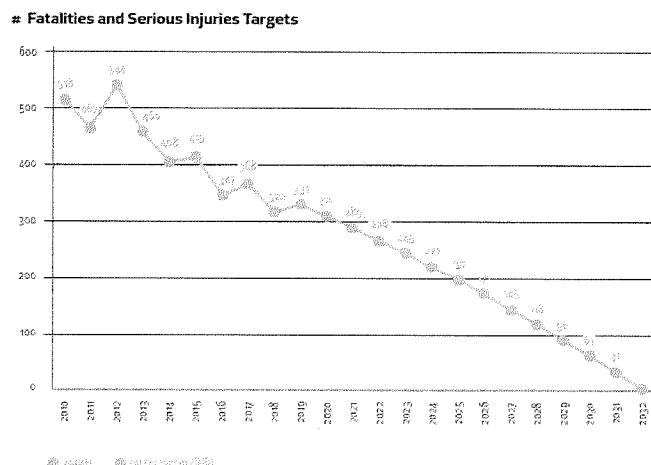


Figure 4 - Fatalities and Serious Injuries Targets (Source: City of Edmonton)

Learn more at:

edmonton.ca/transportation/PDF/2018VisionZeroEdmontonAnnualReport.pdf

City of Oslo: Vision Zero

Oslo has made tremendous progress towards the Vision Zero goal of no traffic fatalities, with only one motor recorded vehicle fatality in 2019 and no pedestrian and cyclist fatalities.

Key Statistics:

- Decrease from 41 fatalities recorded in 1975 to 1 in 2019
- City of 673 000 people
- Major driving restrictions in the city centre and other downtown areas
- Removal of hundreds of on-street parking space to build 60 kilometres of improved cycling facilities.
- Carefree "heart zones" established around each primary school

Key Takeaways:

- Major changes to the street network to prioritize safety and people walking and cycling have made a significant impact.
- Separating different road users limits possibility of human mistakes causing major traffic collisions.
- Street pricing is a powerful tool to limit traffic volumes and create safer streets.
- Political buy in from all parties for road safety initiatives removes uncertainty of political support.
- Areas without any motor vehicle traffic have very few major traffic safety risks.

Learn more at:

<https://usa.streetsblog.org/2020/01/03/vision-zero-norwegian-capital-completely-quashes-road-deaths/>
elitis.org/discover/news/oslo-experiments-car-free-heart-zones-around-schools

City of Montréal: Vision Zero

Road safety improvements identified in the City of Montréal's 2008 transportation plan led to a 50% reduction in KSI collisions between 2008 and 2014. To further reduce KSIs, Montréal adopted a Vision Zero action plan in 2019 with the target of eliminating all traffic-related fatalities.

Key Takeaways:

- Traditional road safety approach showed limited citywide results and stalled reductions in traffic fatalities and serious injuries in 2014.
- Focus on improving cycling infrastructure, with 79 km. of new bicycle facilities since 2014 alongside directional closures, permeability measures, and dedicated bike signals.
- Fatal Collision Monitoring Team (FCMT) collects data from every fatality site, verifying infrastructure conditions and identifying common factors in order to make improvements at related sites across the City, not just at the collision site.
- Heavy emphasis on partnerships, with three Thematic Task Forces (TTFs) on street crossings, heavy vehicles, and speed management.

Learn more at:

<https://ville.montreal.qc.ca/visionzero/en/>



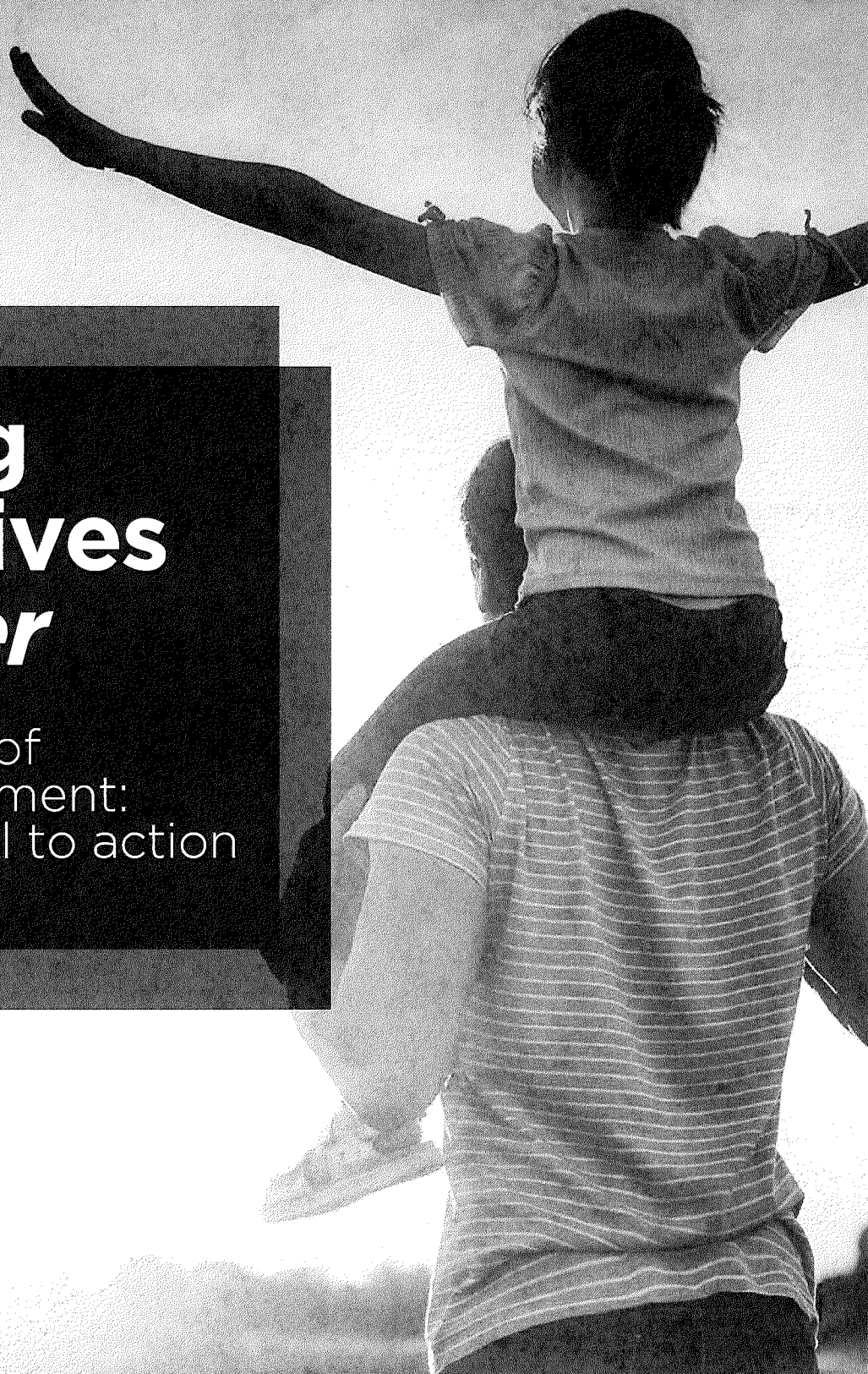
FEDERATION
OF CANADIAN
MUNICIPALITIES

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CANADIENNE DES
MUNICIPALITÉS

Building better lives *together*

First 100 days of
federal government:
A municipal call to action

November 2019



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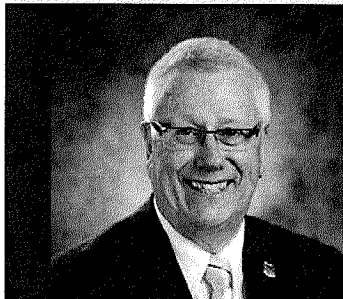
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Federation of Canadian Municipalities
24 Clarence Street
Ottawa ON, K1N 5P3
www.fcm.ca

Ce document est aussi disponible sous le titre
Bâtir de meilleures vies ensemble.

Welcome to Canada's 43rd Parliament



Dear Members of Parliament,

On behalf of Canada's local order of government—and whether you are a new or returning MP, in government or in opposition—please accept our congratulations. Serving Canadians as an elected official is a tremendous privilege, and it's one we all share.

The Federation of Canadian Municipalities (FCM) unites 2,000 local governments nationwide, representing over 90 percent of Canadians. That means we serve the same people you do, in cities and communities of all sizes, in every region. We also share key objectives, from promoting productivity and public safety to boosting our quality of life.

Municipalities are Canada's builders—reality-based and cost-effective. Whether it's through better roads or more affordable housing, our job is to *build better lives*. And we don't do this alone. Increasingly, we work in partnership with the federal government, and we're determined to continue modernizing our relationship to get even more done for Canadians.

A minority parliament presents both challenges and opportunities. Canadians will be looking for progress they can feel in their daily lives. Progress will require active bridge building among federal parties and among governments. Local governments come to the table united and ready to deliver results, and this document outlines proposed next steps.

This new government's first 100 days are critical. Cabinet and shadow ministers will accept specific new mandates. A Speech from the Throne will need to engage Canadians and connect with partners in and out of Parliament. Next spring's federal budget will start to take shape. The seeds for the next phase of our federal-municipal partnership will be sown.

These first days can lay the foundation for a remarkably productive 43rd Parliament. The country is watching. So let's seize this opportunity to build better lives—together—for Canadians from coast to coast to coast.

Sincerely,

A handwritten signature in black ink that reads "Bill Karsten".

Bill Karsten
FCM President
Councillor, Halifax Regional Municipality



FCM: strength in unity

The Federation of Canadian Municipalities is the national voice of Canada's local order of government.

FCM unites nearly 2,000 cities and communities of all sizes, representing more than 90 percent of Canadians living in every province and territory. That gives us unparalleled capacity to convene Canada's local order of government, and to help design and deliver federal initiatives that build better lives for Canadians.

FCM's member municipalities are renowned for their diversity, and for coming together behind shared objectives to achieve concrete results. They work with FCM to raise their local capacity and to craft a united vision to move Canada forward. Together, we are creating and sharing local solutions that build better lives for Canadians.

With roots tracing to 1901, today's FCM is a recognized leader in policy development, government relations, stakeholder outreach and communications. FCM also partners with the Government of Canada to deliver programs that build municipal capacity in everything from asset management to green innovation to Indigenous partnership.

Leadership

FCM's elected Board of Directors comprises local leaders from every region of Canada. They meet regularly to set policy and priorities based on the shared concerns of member municipalities. In the day-to-day, they are represented by an executive committee that includes FCM's president and four table officers, each elected to one-year terms.

Board decisions are informed through an inclusive governance model that supports FCM's strong relationships with the Government of Canada and a full range of stakeholders.

Standing committees study and recommend policy and action on key issues—including community safety; environmental issues; women's participation in local government; international relations; infrastructure and transportation; municipal finance; and social-economic development.

Five regional caucuses—British Columbia, Prairies & Territories, Ontario, Quebec and Atlantic—help ensure that FCM's policy and advocacy priorities represent a pan-Canadian vision for progress.

FCM's Rural Forum advocates for rural communities and provide local governments in rural areas with greater access to FCM. It brings together FCM member municipalities located in rural regions, along with urban communities with rural areas or significant rural interests. Our Northern and Remote Forum serves a similar convening role.

FCM's Big City Mayors' Caucus convenes the mayors of 22 of Canada's largest cities. BCMC mayors regularly coordinate action and partner with the federal government to tackle pressing national challenges—from economic productivity to the housing affordability crisis.

Policy & advocacy

As the national voice of local government, FCM actively moves national conversations forward with support from a team of professionals. We maintain regular contact with the federal government, opposition parties and a wide range of stakeholders in the public sector, industry and civil society. From budget consultations to committee hearings and far beyond, expect to hear from us on national issues with local implications.

On the policy front, FCM conducts research and analysis that supports Board priorities, drives advocacy positions, and informs capacity-building tools for member municipalities. From affordable housing to cannabis legalization to the state of Canada's infrastructure, successive governments have relied on FCM's policy work.

As a communications force, FCM has a strong track record of earning media coverage, managing multiple digital channels, and framing local priorities as compelling storylines. Our major events include FCM's Annual Conference and Trade Show—whose 2019 edition drew 3,000-plus participants and four major federal party leaders to Quebec City.

Capacity-building programs

For more than 30 years, FCM has partnered with the Government of Canada to deliver a suite of highly-regarded national and international programs. Together, we are building municipal skills and knowledge on everything from climate resilience and asset management to strengthening partnerships with Indigenous communities.

Since 2000, FCM's Green Municipal Fund (GMF) has brought life to more than 1,310 local initiatives—cutting 2.6 million tonnes of GHG emissions while benefitting Canadians through cleaner air and drinking water, new uses for contaminated sites, and more. In 2019, the Government of Canada entrusted nearly \$1 billion more to scale up GMF's drive for cost-saving energy efficiency in communities nationwide.

Budget 2019 also reinvested in FCM's Municipal Asset Management Program (MAMP), which helps communities optimize their long-term planning to make infrastructure dollars go further. Similarly, our Municipalities for Climate Innovation Program (MCIP) provides funding, training and tools to municipal practitioners and local sustainability leaders.

FCM's international programming brings Canadian expertise to municipalities in Africa, Asia, Latin America, the Middle East, the Caribbean and Eastern Europe—and fresh ideas back to Canadian local governments.

Western Economic Solutions Taskforce

fcm.ca/WEST

For Canada to thrive, its communities need to thrive. But right now, too many of our communities in regions of the west are hurting. And too many families and workers are feeling isolated from their fellow Canadians in the search for solutions.

In November 2019, FCM launched the Western Economic Solutions Taskforce (WEST)—to ensure the voices of communities in the prairies

are well-represented at the national level, and to drive new solutions. As part of that, WEST aims to convene a respectful dialogue between municipal and federal governments.

Canadians trust their local leaders to be pragmatic and to work across partisan lines. It's how we get results. And we invite all parliamentarians to work with WEST on the road ahead.

Local governments: closest to Canadians

Municipalities form an effective, trusted order of government—the governments closest to Canadians' daily hopes and challenges.

FCM's nearly 2,000 member municipalities represent more than 90 percent of all Canadians. Our cities and communities are the places where people live, work and raise their families. Our local governments are on the front lines of services and programs that drive prosperity, promote citizen engagement and support our quality of life.

Our job is to understand local challenges and build solutions that work on the ground. With our small fraction of Canada's tax base—mostly property taxes—we've learned to make the most of every dollar, and every new federal tool, to deliver concrete results.

Local government is renowned for being open, transparent and responsive to people's needs. A recent Abacus Data survey showed that when it comes to understanding their quality-of-life needs and delivering solutions, 61 percent of Canadians trust their local leaders the most.

In a word, municipalities are Canada's *builders*. Whether it's through better roads, modern transit, more affordable housing or climate solutions, we're building better lives for Canadians. That's an objective shared by every order of government. And we are uniquely positioned to deliver on federal initiatives that aspire to improve people's lives across the country—efficiently and cost-effectively.





Local governments are on the front lines of daily life and commerce.

Municipal responsibilities include:

- 60 percent of Canada's public infrastructure
- local policing and public safety measures
- local transportation, including road maintenance and public transit
- local social services and housing
- water and wastewater services
- waste management and recycling
- sustainability initiatives
- parks, recreation, libraries and culture
- public health, including school outreach programs and community vaccinations

Shared municipal-federal priorities include:

- job creation
- economic growth and productivity
- infrastructure renewal and expansion
- housing affordability
- disaster mitigation and climate adaptation
- environmental and climate stewardship
- immigrant and refugee settlement
- partnership and reconciliation with Indigenous peoples
- emergency management
- community safety
- crime prevention



Our partnership: progress to build on

Successive federal governments have deepened their partnership with FCM to tackle pressing national challenges—from economic productivity to climate change and the housing crisis. FCM and our members are delivering federal initiatives and bringing local expertise to federal decision-makers. And we'll get even more done if we continue modernizing our partnership—with local leaders at the table earlier, more often, and empowered with modern tools to deliver for Canadians.

Some highlights of the progress we have driven together:

- **Building transformational infrastructure:** The Investing in Canada Infrastructure Plan (ICIP) has raised the bar—in its term, scale, scope and cost-sharing models—for federal investments in new local infrastructure. As ICIP investment flows, it helps us transform our communities with modernized transportation infrastructure, recreation facilities, water treatment, public transit and more. ICIP fundamentally recognizes that local solutions are key to improving Canada's quality of life. (See *Strong infrastructure*.)
- **Expanding public transit:** ICIP's 10-year public transit stream has been a game-changer. By delivering investment as predictable allocations, it is directly empowering cities to deliver major transit system expansions. From Surrey to Edmonton to Brandon to Montreal, Canadians in dozens of cities are now looking forward to faster commutes, less gridlock, lower emissions and higher productivity. (See *Modern public transit*.)

Next steps together

- **Renewing core infrastructure:** FCM worked with successive federal governments to shape the federal Gas Tax Fund transfer—which each year directly empowers municipalities to drive thousands of projects to renew roads, bridges, water systems and other infrastructure. And by doubling this year's GTF transfer, Budget 2019 is directly accelerating quality-of-life improvements for Canadians from coast to coast to coast. (See *Strong infrastructure*.)
- **Securing affordable housing:** After decades of municipal advocacy, the National Housing Strategy launched in 2017 marked a breakthrough federal re-engagement in protecting and building social and affordable housing for lower-income Canadians. And we're already seeing major outcomes across the country—from essential repairs to more than 58,000 social housing units in Canada's biggest city to the development of Nunavut's first-ever transitional housing facility. (See *Housing affordability*.)
- **Strengthening rural Canada:** FCM has worked with successive governments to reshape federal programs to rural realities. With dedicated investment and stronger cost-sharing, the Investing in Canada Infrastructure Plan is driving new and upgraded roads, water/waste systems, recreation centres and other facilities that support a strong rural quality of life. And recent federal commitments to broadband investment create an opportunity for real progress on the rural Internet access gap. (See *Rural progress*.)
- **Driving green innovation:** Since 2000, FCM's federally-endowed Green Municipal Fund has brought life to more than 1,310 local sustainability initiatives—cutting 2.6 million tonnes of GHG emissions, creating 10,000 person-years of employment, and building better lives for Canadians nationwide. Budget 2019 invested nearly \$1 billion to expand GMF's mission to drive cost-saving energy efficiency across Canada—through greener community buildings, more efficient affordable housing, and local programs that help people retrofit their own homes. (See *Climate action*.)



Strong infrastructure

Empowering municipalities to build and renew core infrastructure delivers deep national impact: good jobs, new growth, higher productivity and better lives for Canadians.

10%

Portion of Canada's tax dollar collected by municipalities

60%

Canada's public infrastructure owned by municipalities

84%

Canadians who say municipalities need new federal funding tools

40%

Portion of Canada's roads and bridges needing upgrades within the decade

\$1.6B

Average economic growth generated by investing \$1B in infrastructure

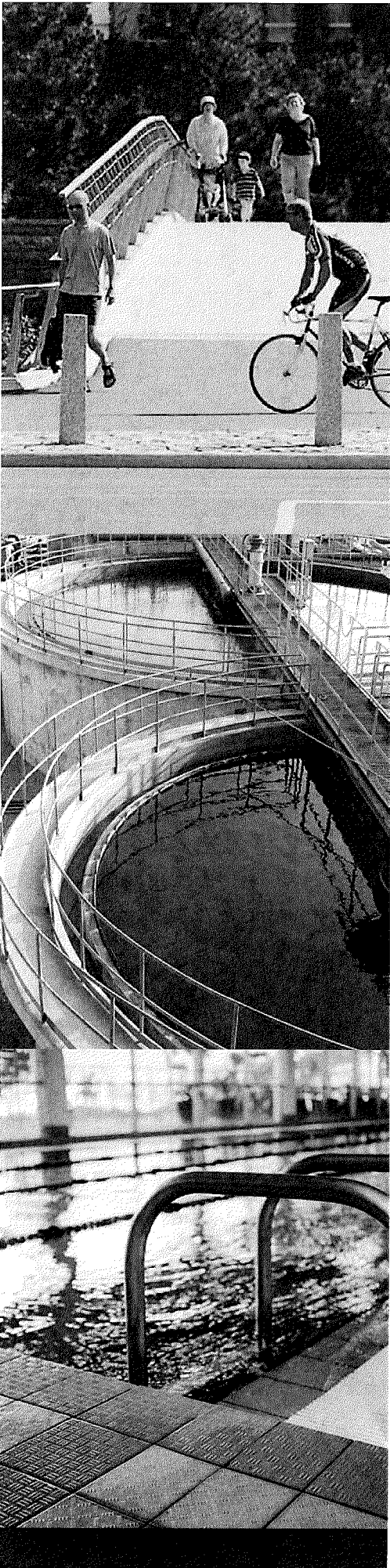
Shared opportunity

Businesses need good roads and bridges to deliver goods and services. Families depend on clean water, reliable waste management, quality recreation facilities, protection from extreme weather, and so much more.

Municipalities own 60 percent of the core infrastructure that supports Canada's economy and quality of life. Yet they collect just 10 cents of Canada's tax dollar to manage all of this, alongside an expanding slate of vital services. That's why our federal partnership is key to strengthening local infrastructure to meet this country's evolving needs.

When the federal government invests in infrastructure, local governments deliver results with our trademark efficiency. Long-term and predictable funding empowers local leaders to plan smart and save money. And flowing funding more directly to municipalities recognizes that we understand local realities and deliver solutions that work.

Those local solutions tackle national challenges as well. Investing in local infrastructure creates jobs, boosts productivity, and mitigates risks posed by new climate extremes. Above all, it helps us build better lives for Canadians, in cities and communities of all sizes, from coast to coast to coast.



Progress highlights

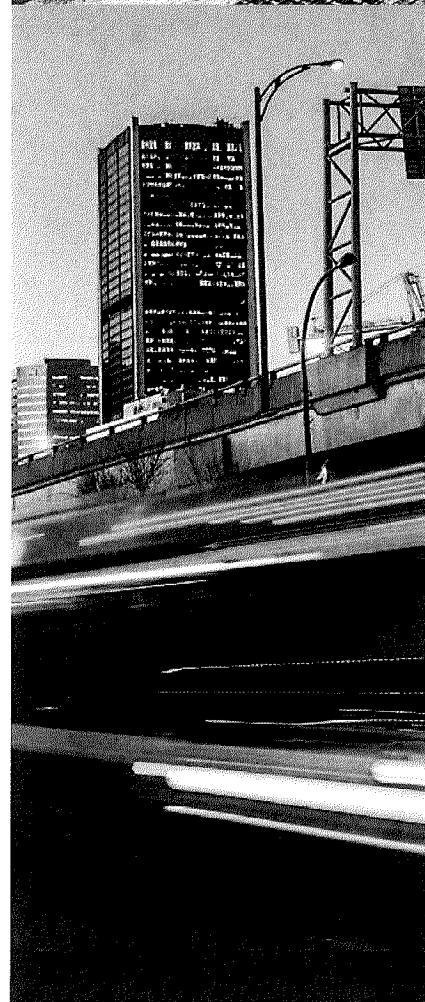
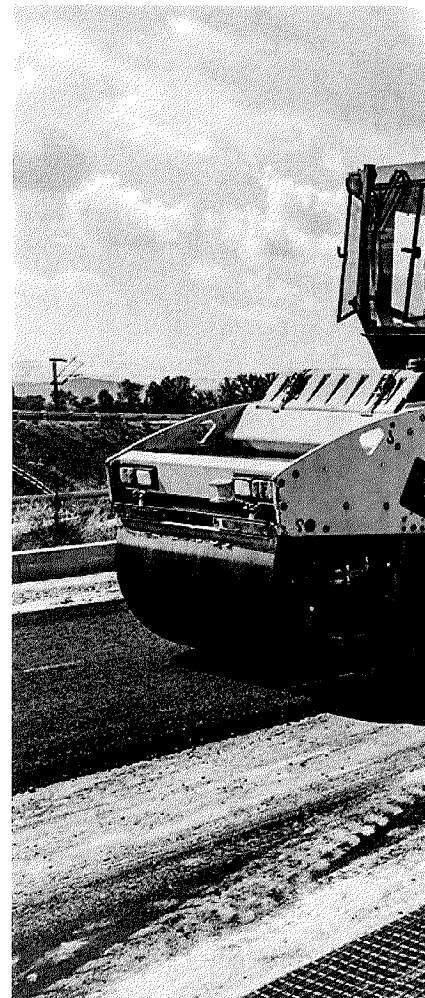
The **Investing in Canada Infrastructure Plan (ICIP)** launched in Budget 2016 raised the bar—through its scale, scope and 10-year horizon—on enabling local solutions to national challenges. Already, ICIP funds are fuelling community-transforming projects—from a new wastewater treatment plant in Powell River, BC, to a multi-use cultural/recreation complex in Centreville, New Brunswick, to thousands of kilometers of roadwork across rural Canada. And ICIP's public transit stream deploys an FCM-recommended allocation model that's directly empowering cities across the country to drive major expansions (see *Modern public transit*).

ICIP aims to get projects moving with stronger federal cost-sharing—another clear response to FCM's advocacy on behalf of municipalities. Through agreements with provinces and territories, Ottawa has increased its funding contribution to up to 40 percent of eligible costs—up to 60 percent under ICIP's rural and northern stream for communities with populations under 5,000, and up to 75 percent in the territories. And the Liberal Party platform reinforced a commitment to ensure ICIP funds reach municipalities as intended, in every region.

The complementary **Disaster Mitigation and Adaptation Fund (DMAF)** is empowering local governments to build more climate-resilient communities. Funded at \$2 billion over 10 years, DMAF's very first intake supported 39 projects with \$1.3 billion—the majority driven by municipalities—underlining the need to scale up federal tools. (See *Climate action*.)

The federal **Gas Tax Fund (GTF)** is the permanent, predictable federal funding tool that offers municipalities flexibility to prioritize rehabilitation of *existing* infrastructure. FCM worked with successive governments to create the GTF (2005), make it permanent (2011) and index it (2014). Every year, it empowers municipalities of all sizes to cost-effectively move thousands of projects forward—renewing roads, bridges, water systems, and more. Our challenge is scale: every year, the GTF still leaves many vital projects unfunded. The Canadian Infrastructure Report Card shows that more than 30 percent of infrastructure in key classes will need urgent upgrades within a decade.

Federal Budget 2019 recognized this untapped local potential by **doubling this year's GTF transfer** to move more projects forward. That's why Prince Albert, Saskatchewan, can finally move forward with vital upgrades to its water treatment plant. London, Ontario, is using its GTF top-up to install a system that will transform heat from wastewater treatment into electricity—generating \$600,000 in savings annually while substantially cutting GHG emissions. The City of Moncton, New Brunswick, is resurfacing an additional 11.6 km of road—and similar projects are rolling out across the country. To build better lives for Canadians, FCM continues to advocate for a permanent doubling of this cornerstone tool.



Next steps

- **Work with FCM to ensure the Investing in Canada Plan Infrastructure Plan (ICIP) continues to deliver results for Canadians**—delivering funding efficiently, enabling flexibility and maximizing outcomes by:
 - ▶ Re-engaging provinces and territories on ICIP to ensure project priorities are approved by the end of 2021—while re-affirming the election commitment to flow any remaining funds directly to municipalities through the Gas Tax Fund transfer.
 - ▶ Eliminating the 15 percent cap on rehabilitation costs under ICIP's public transit stream.
 - ▶ Amending ICIP's community, culture and recreation stream to include municipal administrative buildings and council chambers.
 - ▶ Increasing ICIP stacking limits to enable rural and small municipalities to pool other sources of federal funding such as the Gas Tax Fund towards ICIP-funded projects.
- **Strengthen the Gas Tax Fund** by increasing its annual escalator from 2 to 3.5 percent—and explore options to maximize the impact of this proven funding model, for communities of all sizes, including phasing in a permanent doubling of the transfer.
- **Take immediate action to scale up dedicated funding for local disaster mitigation and climate adaptation** by increasing the Disaster Mitigation and Adaptation Fund by \$2 billion for the period 2020–21 to 2023–24—and eliminating the \$20 million minimum project eligibility threshold so communities of all sizes in all regions can access funding. (See *Climate action*.)
- **Design and implement the proposed National Infrastructure Fund in consultation with FCM** to ensure that this new source of federal funding addresses municipal infrastructure priorities, meets regional needs and enhances ICIP.



Housing affordability

Working alongside municipalities to tackle today's housing affordability challenges helps secure the foundation for tomorrow's more livable, competitive and sustainable Canada.

40%

Canadian renters spending at least 30% of their income on housing

75%+

Rental properties across Canada that are at least 36 years old

52%

Portion of median household income needed for homeownership costs of average-priced home

23%

Canadians under 30 spending more than half their income on rent

18%

Renter households spending more than half their income on rent

Shared opportunity

A home is more than a roof over your head. Secure housing helps provide that foundational sense of security we need to raise healthy families, start businesses and contribute to our communities in the fullest sense.

Yet Canadians face a housing affordability crisis: a growing disconnect between rents, home prices and income levels. Our most vulnerable neighbours struggle with a shortage of social, affordable and supportive housing. And as market rents and prices balloon, more Canadians are forced to accept longer commutes to find decent housing they can afford—or put off saving for their retirement or their kids' education.

Local governments are working hard to foster housing solutions. Some deliver social housing and homelessness programs. Others are using the tools they have to preserve and build affordable housing—waiving or reducing fees, expediting permits and providing municipal lands for development. Each one recognizes that secure housing is the bedrock of the livable, competitive communities we strive to build.

Canadians expect their governments to work together to tackle the housing crisis. Ultimately, this is about setting people up for success—workers and students, families and newcomers—so they can build tomorrow's Canada. And that has to be a driving priority for every order of government.

Editorial credit: Shutterstock.com

Progress highlights

November 2017 brought Canada's first-ever **National Housing Strategy (NHS)**. After 20 years of municipal advocacy, FCM welcomed this federal re-engagement on housing as a breakthrough. We significantly helped shape its focus on repairing and growing Canada's supply of social and affordable housing, while preserving rent subsidies for low-income households living in social housing and supporting communities to address homelessness.

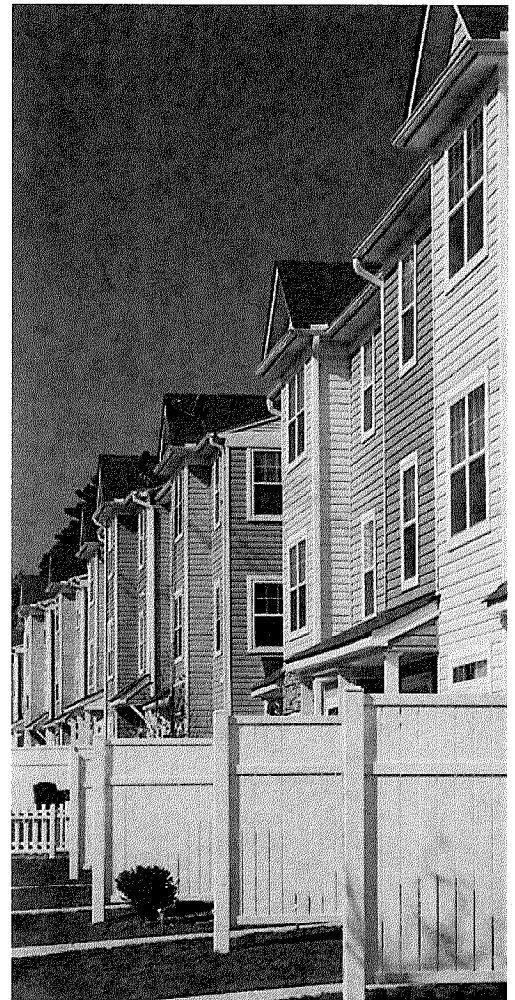
We're already seeing major outcomes in communities of all sizes. For instance, the NHS' National Housing Co-investment Fund is supporting essential repairs to more than 58,000 Toronto Community Housing homes, offering long-term security to more than 110,000 tenants—in a city facing a 1.1 percent vacancy rate. That same NHS fund is supporting the development of Nunavut's first multi-stage transitional housing facility—set to provide 73 spaces in Iqaluit to help individuals transition from emergency shelter to permanent housing.

As this essential work continues to roll out across the country, FCM is identifying opportunities to fill key gaps in the NHS. These include additional, dedicated support for housing construction in two categories:

- culturally-appropriate social and affordable housing for Indigenous households in our communities; and
- supportive housing for those experiencing homelessness and living with mental illness, substance use and other challenges.

Mayors are also setting their sights on the **wider housing affordability crisis** that weighs down Canadians at a range of income levels. As one urgent next step, FCM has proposed approaches to protect residents of market rental housing from displacement through demolition and rent-inflating practices like “renoviction.” And through forums like the Big City Mayors' Caucus and The Urban Project, FCM is convening industry, civil society, academic and public sector leaders to explore the complex forces driving this crisis—from financial speculation to short-term rentals.

But the time has arrived to bring *all* orders of government together more formally—to drive solutions to these housing challenges that we all grapple with, every single day.



Next steps

To strengthen vital federal leadership for **low- and moderate-income households** through the National Housing Strategy (NHS):

- **Increase funding and unit targets** to realize more social and affordable homes in the community housing sector beyond current plans—including, but not limited to supportive housing and social/affordable housing for Indigenous households in our communities (no less than 18,400 and 8,000 units respectively, over the remaining eight years of the NHS).
- **Strengthen and expedite the signing of funding agreements** with municipalities and housing providers that leverage the National Co-Investment Fund and other envelopes, to both repair and build social and affordable housing by:
 - ▶ Providing grant contributions deep enough to drive truly affordable developments located close to transit, promoting increased ridership aligned with climate action.
 - ▶ Deploying additional regional CMHC staff to finalize agreements and flow funding.
 - ▶ Engaging municipalities early in the process when projects are being considered so they can provide input on how projects would fit into local housing plans.
 - ▶ Ensuring investments flow efficiently and equitably to all parts of Canada.
 - ▶ Interpreting National Co-Investment Fund parameters flexibly, particularly on accessibility and energy efficiency, to ensure they reflect local housing needs and housing stock.

- **Scale up and expedite the Federal Lands Initiative** by empowering municipalities to identify surplus federal lands, while adjusting the Canada Lands Company's mandate to prioritize provision of land for social and affordable housing.
- **Continue rolling out the Reaching Home homelessness initiative**, preserving its federal-community orientation and quickly confirming new Designated Communities.

To expand federal leadership on the wider **housing affordability crisis**:

- **Launch a Housing Forum**, convening provinces/territories and municipalities, through FCM, to coordinate analysis and action on key issues—including speculation, demand-side measures, supply needs, short-term rentals, data gaps, and the municipal toolbox.
- **Create a market rental preservation program** incenting landlords to repair and retrofit relatively affordable units without increasing rents beyond inflation, discouraging tenant-displacing measures like “renoviction”, while improving housing quality and reducing GHG emissions (targeting 40,000 units over the remaining eight years of the NHS).
- **Develop an “affordability indicator”** by kick-starting a process that results in regular reporting on combined costs of housing and transportation at the household level—providing decision-makers with a fuller picture of affordability pressures and their linkages to GHG emissions.
- **Assess regional implications of mortgage guideline B-20** including how it relates to economic activity, access to and affordability of homeownership and the stability of the financial system.



Modern public transit

Empowering municipalities to build next-generation transit will get people moving—with faster commutes, less gridlock, lower emissions and higher national productivity.

1.5M

Canadians who spend more than two hours commuting daily

\$12K

What the average household spends annually on all transportation

\$10K

Annual savings for households commuting by transit

\$15B

Economic productivity lost annually in Canada to traffic congestion

\$3B

Economic growth per \$1B invested in transit

Shared opportunity

Efficient and affordable public transit is the backbone of the cities and communities Canadians want us to build: modern, livable, affordable and sustainable.

People want to spend less time commuting and more time with family and friends. Job-creating businesses want to be more accessible to talented workers and new customers. We all want to ease traffic congestion—for higher productivity, cleaner air, lower emissions and better health.

Canada's cities own and operate most of Canada's local transit systems. Historically, they've provided the largest share of funding for the capital costs of expanding and renewing local transit. They also subsidize operating costs not covered by fare box revenue, largely through local property taxes.

To build tomorrow's modern public transit, a strong federal-municipal partnership is crucial. Building transit takes decades of continuous planning, design and delivery. That's why long-term funding stability is the key to moving forward—responsibly, cost-effectively, and without interruption.

When we do, we'll deliver major national returns on investment. Each dollar invested in transit generates three in economic growth. And as we get people moving, we'll be building better lives for millions of Canadians.

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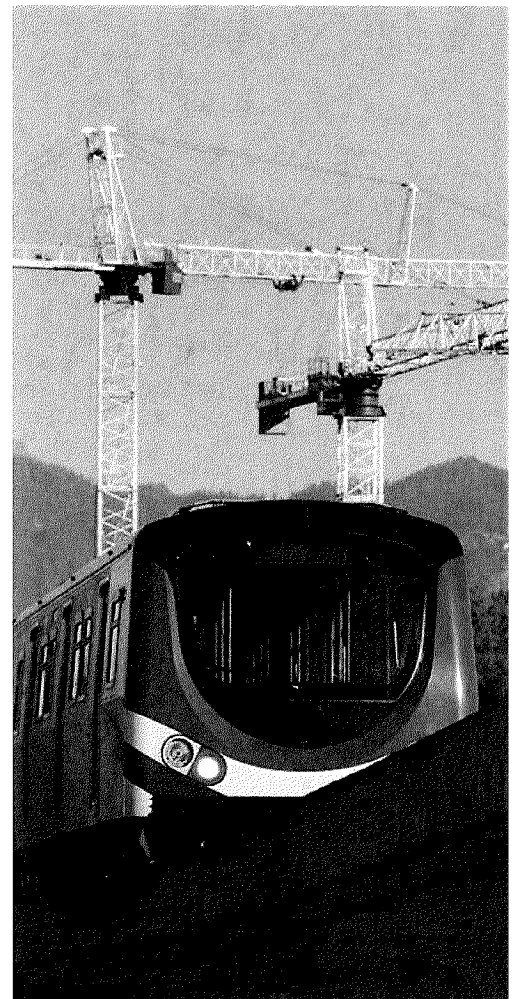
Progress highlights

FCM has worked with successive federal governments to move public transit up the national agenda—to reduce emissions, boost national productivity and build better lives. And since 2017, the **transit stream of the Investing in Canada Infrastructure Plan** has been a game-changer for cities and communities across the country. By delivering investment to transit systems as predictable allocations, this plan has put local leaders in the driver's seat—from project selection through design and delivery.

Canadians are already seeing results on the ground. Metro Vancouver has relied on ICIP funds to kick-start a 10-year plan that includes extending SkyTrain rapid transit under Broadway Avenue in Vancouver and between Surrey and Langley. Edmonton is getting ready to move forward on the Western segment of a 27 km light rail line that will run between Mill Woods and Lewis Farms. Montreal will extend its Metro Blue Line from Saint-Michel to St. Leonard and Anjou. Nationwide, municipalities are driving projects that will shorten people's commutes and improve their everyday quality of life.

The reality, however, is that city planners are already bumping into the federal plan's 2027 sunset date. Long-term progress requires long-term funding stability. That's why FCM welcomed platform commitments to a **permanent federal funding mechanism for public transit**—from three national parties, including the Liberal Party. And municipalities across the country are ready to help turn this commitment into 21st century transit nationwide.

The Liberal Party platform also commits to support **local transitions to zero-emission transit fleets**. Increasing the scale and term of that commitment would empower local governments to significantly reduce greenhouse gas emissions across the country.



Next steps

To set Canada on a path to 21st century public transit—with faster commutes, lower emissions and a higher quality of life:

- **Launch a permanent federal funding mechanism** to support the growth and modernization of public transit systems across Canada—as laid out in the Liberal Party election platform. Funding certainty will empower cities to begin detailed planning and even procurement for the next wave of transit expansions.
- **Ensure this new mechanism delivers predictable investment**—maintaining existing funding commitments through 2027-28, while committing now to \$34 billion for the decade following, with a consistent \$3.4 billion annual spending profile.
- **Design this new mechanism for transformational national impact.** FCM recommends \$30 billion in direct allocations to transit agencies—plus at least \$4 billion for a merit-based fund to support needs that can't be met by ridership-based allocations alone. (This new fund would support urban transit expansions as well as regional and rural mobility needs, including regional bus, para-transit or seniors shuttles services.)
- **Optimize current transit funding to meet local needs** by eliminating the 15 percent cap on rehabilitation costs under the existing public transit stream of the Investing in Canada Infrastructure Plan.

To achieve faster and deeper GHG emission reductions:

- **Accelerate the mass adoption of zero-emission transit vehicles (ZEV)**—working with FCM to design a program enabling the replacement of half of the diesel buses currently on the road with fully electric or other ZEV models by 2030. While we welcome the platform commitment to replace 5,000 transit and school buses with ZEV models, FCM estimates that \$2.7 billion in new federal support will be required to cover costs of converting transit fleets, including charging infrastructure and associated garage expansions. (See *Climate action*.)



Climate action

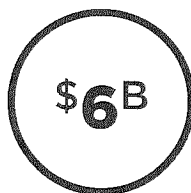
With the right tools, cities and communities can achieve deep greenhouse gas reductions and protect Canadian families and businesses from new weather extremes.



Annual costs of climate change in Canada by 2020



Forecast annual costs of climate change by 2050



Future savings per \$1B invested in local adaptation



Portion of Canada's GHG emissions municipalities influence



Tonnes of GHGs reducible by converting half of transit buses to low- or zero-emission models

Shared opportunity

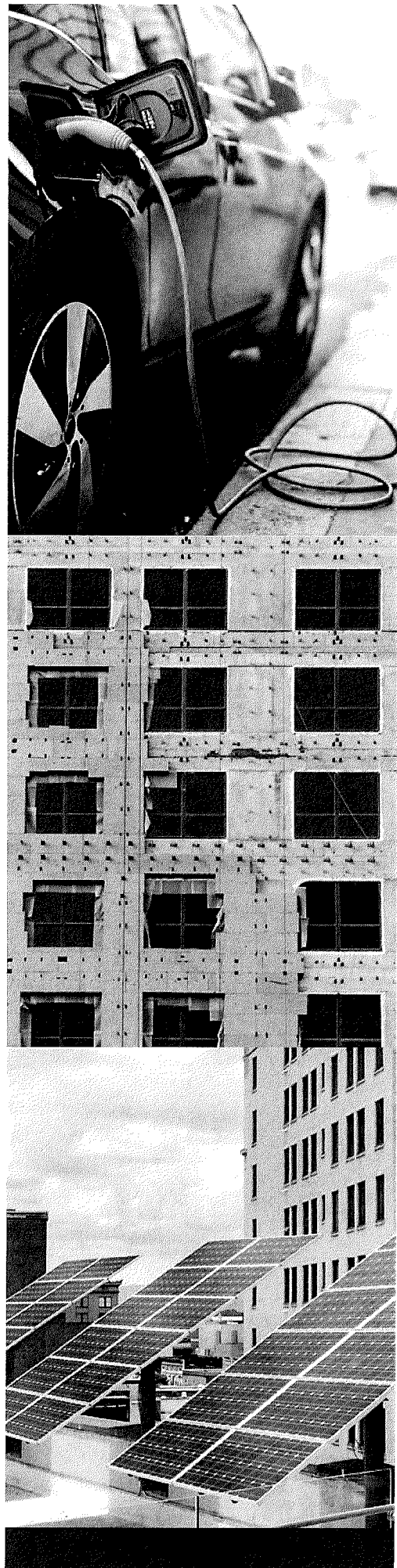
Canadians want all of their governments to work together to reduce greenhouse gas (GHG) emissions and to protect people and communities from inevitable effects of our changing climate.

Local leaders understand those mounting climate effects firsthand. From floods and wildfires to ice storms and coastal surges, we're responding on the front lines as new weather extremes force families from their homes and wreak havoc on local businesses.

Climate change is already costing our economy billions each year in property damage and lost productivity. And municipalities are working hard to build more resilient communities to keep us safe. At the same time, with influence over half of Canada's GHG emissions, we're driving low-carbon innovation—from building retrofits to sustainable transportation to efficient waste systems.

Many local governments have made ambitious commitments to reduce emissions, including deep reductions by mid-century. We all recognize this tremendous *local* potential for *national* impact. But unlocking it fully will require a strong federal-municipal partnership, with long-term funding tools to deliver results on the ground.

Investing in local climate action is an opportunity to bring Canadians together on the challenge of our times. Local emission-reduction projects generate energy cost-savings—genuine win-wins. And everyone expects their elected leaders to work together to keep them safe, today and into the future.



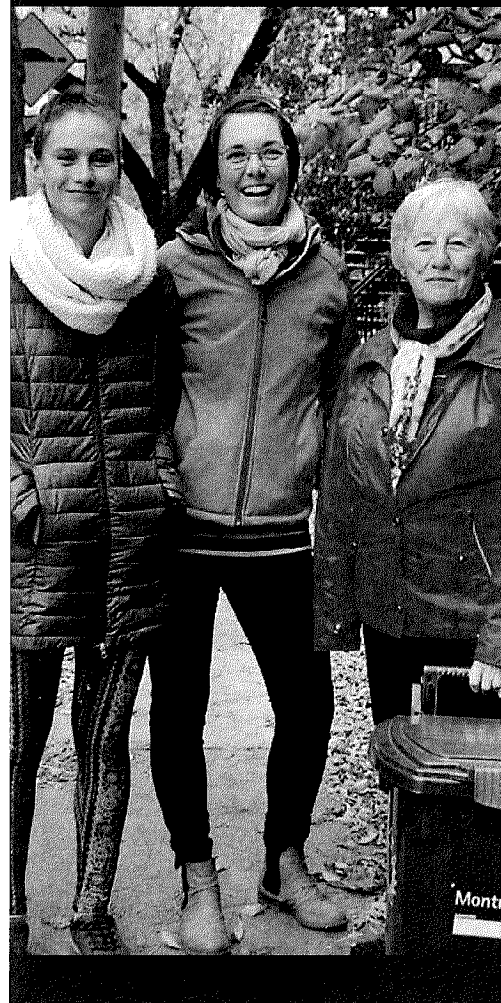
Progress highlights

Since 2000, FCM's federally-endowed **Green Municipal Fund (GMF)** has helped bring more than 1,310 local sustainability initiatives to life—improving the quality of life of millions of Canadians. Together, these projects have already reduced 2.6 million tonnes of GHG emissions, while creating 10,000 person-years of employment. Budget 2019 invested nearly \$1 billion to expand GMF's mission to drive cost-saving energy efficiency across Canada—through greener community buildings, more efficient affordable housing, and local programs that will help people retrofit their own homes for lower energy bills.

Launched in 2018, the federal **Disaster Mitigation and Adaptation Fund (DMAF)** is empowering municipal governments to build more climate-resilient communities. For instance, DMAF support for the City of Saint John's flood mitigation strategy means an upgraded sea wall and pumping stations, and new protection for electricity infrastructure on the waterfront. Eighty-five northern Saskatchewan communities are better protected from wildfires thanks to 141 fuel mitigation initiatives across 1,072 hectares of municipal land. Across Canada, municipalities are using DMAF to keep families and businesses protected. Funded at \$2 billion over 10 years, DMAF's very first intake supported 39 projects with \$1.3 billion—the majority driven by municipalities—underlining the need to scale up federal tools.

Through the **Pan-Canadian Framework for Clean Growth and Climate Change**, federal programs are helping municipalities reduce GHG emissions and adapt to climate change. Successful programs include the Canadian Centre for Climate Services, which is helping municipalities incorporate climate models into infrastructure decisions; the Zero-Emission Vehicle Charging Infrastructure Program, which is supporting the installation of public charging stations; and the Low Carbon Economy Challenge Fund, which has funded municipal projects that reduce emissions from buildings and municipal waste streams.

FCM's **Municipalities for Climate Innovation Program (MCIP)** provides critical support to communities of all sizes that want to move forward on climate adaptation and mitigation. Launched with federal funding in 2017, this 5-year \$75 million program is empowering local leaders to assess current practices *and innovate*. We've engaged local municipalities with funding, training and tools to conduct local climate risk assessments, work with neighbouring communities to identify solutions and upgrades to strengthen infrastructure against climate impacts, and develop long-term plans to reach significant GHG emission reduction targets.



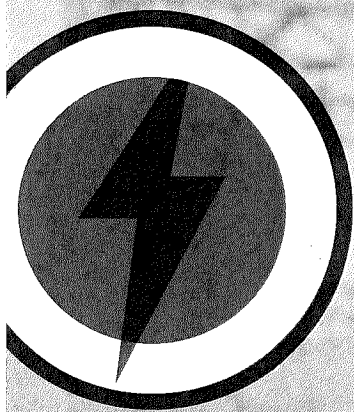
Next steps

To empower municipalities to protect Canadians from new climate extremes:

- **Urgently scale up dedicated funding for local disaster mitigation and climate adaptation** by increasing the Disaster Mitigation and Adaptation Fund by \$2 billion for 2020-21 to 2023-24—and eliminating the \$20 million project eligibility floor so communities of all sizes in all regions can benefit.
- **Strengthen local capacity to assess and respond to climate risks** by committing to support municipalities, through proven models like FCM's Municipalities for Climate Innovation Program, to build a comprehensive understanding of: climate risks; impacts to local services and infrastructure; costs of adaptation; and optimal ways to reduce risks and protect Canadians.
- **Develop an ambitious, long-term investment plan for disaster mitigation and climate adaptation** by convening municipal, provincial/territorial and Indigenous partners to assess current adaptation efforts and estimate investment required to protect our communities over the long-term—building on research conducted by FCM and the Insurance Bureau of Canada that estimates the need at \$5 billion per year.
- **Support natural climate solutions** by designing and implementing the proposed \$3 billion in new federal programming in consultation with FCM to ensure it addresses municipalities' needs and leverages their role as owners and managers of natural infrastructure.

To achieve deep GHG emission reductions in our cities and communities:

- **Accelerate the mass adoption of zero-emission transit vehicles**—working with FCM to design a funding program enabling the replacement of half of the diesel buses on the road by 2030. This would reduce Canada's GHG emissions by 10.5 million tonnes—13 percent of the additional reductions required to meet Canada's 2030 emissions target. (See *Modern public transit*.)
- **Accelerate the mass adoption of electric cars and zero-emission municipal fleet vehicles**—confirming municipalities are within the scope of election commitments to expand the network of public charging stations across the country, and to increase the adoption of zero-emission vehicles in corporate fleets.
- **Develop a market rental housing preservation program** that incentivizes property owners to invest in energy retrofits. This complements new investments in FCM's Green Municipal Fund and election commitments to offer interest-free loans to homeowners—supporting renters by encouraging their landlords to upgrade aging and inefficient buildings. (See *Housing affordability*.)
- **Engage FCM in the development and implementation of federal climate policies and programs**, ensuring municipalities have the funding, data, capacity-building resources and regulatory frameworks needed to achieve deep GHG emissions reductions within their field of influence—primarily from buildings, transportation and waste.



Energy development

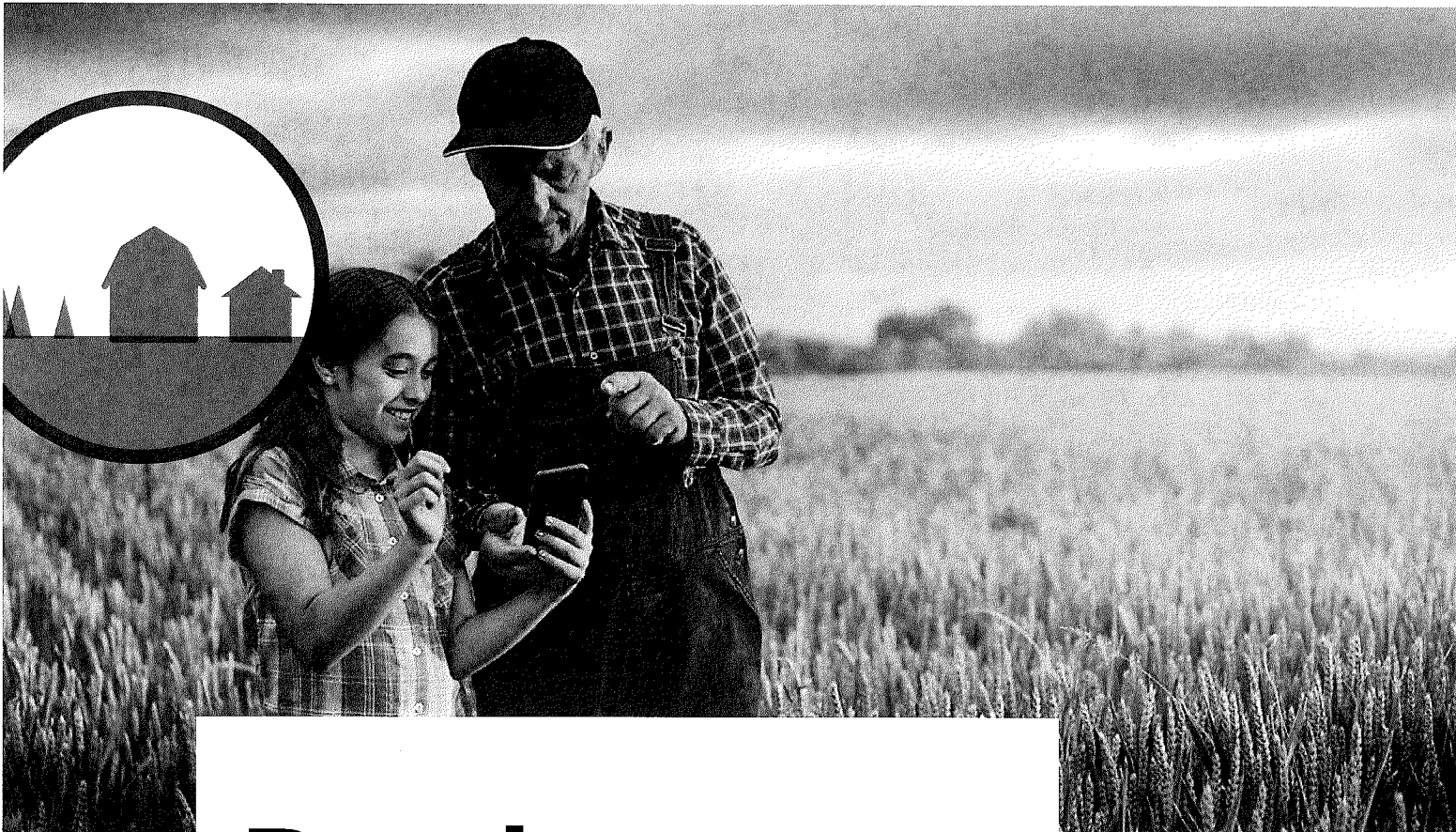
Natural resources power the economies of communities of all sizes and regions—from northern mining towns to Bay Street. And municipalities in resource-rich regions rely on their development for tax revenue and for good jobs to support the next generation of residents.

With an eye to the future, these municipalities are looking to the federal government to support nation-building energy infrastructure projects. At the same time, municipalities recognize the impacts of climate change firsthand, as wildfires, floods and storms hit our communities harder and more often. And we know we hold keys to solutions that change how we get around, how we heat and cool our homes and businesses, and how we manage water and waste (see *Climate action*).

Canada's energy sector is at the outset of a transition toward renewable sources—and this must be a just transition for the workers and communities who've built this industry. Canada has committed to keep GHG emissions below levels that will contribute to catastrophic climate change. But a comprehensive federal climate and energy strategy must have the future of communities in oil and gas producing regions at its heart.

Next steps

- **Advance nation-building energy infrastructure projects** to increase international market access—recognizing that additional export capacity will address the persistent cost differential facing Canada's oil and natural gas products.
- **Promote local community benefits** by working with provinces, territories and industry to ensure that municipalities receive adequate financial benefit from conventional and renewable energy development.
- **Consider impacts of energy infrastructure projects on local communities** during federal impact assessments, including positive economic benefits, as well as economic, social, health and environmental risks—ensuring approved projects meet high environmental standards and respect provincial, territorial and municipal jurisdiction.
- **Support communities in energy-producing regions** by investing in infrastructure, renewable energy and local economic development programming, helping communities diversify their economic base and municipal tax revenue sources over the long-term.



Rural progress

Rural and remote communities are essential to Canada's economy and quality of life. And with flexible tools and a voice at the table, their local leaders will be ready to build better lives for millions of Canadians.

30%

Portion of Canada's GDP generated in non-metropolitan areas

10^M

Canadians living outside census metropolitan areas

2^M

Canadians who still can't access a fast, reliable Internet connection

275,000

Kilometres of roads owned and maintained by rural municipalities

38%


Portion of roads in "fair, poor or very poor" condition and requiring upgrades



Shared opportunity

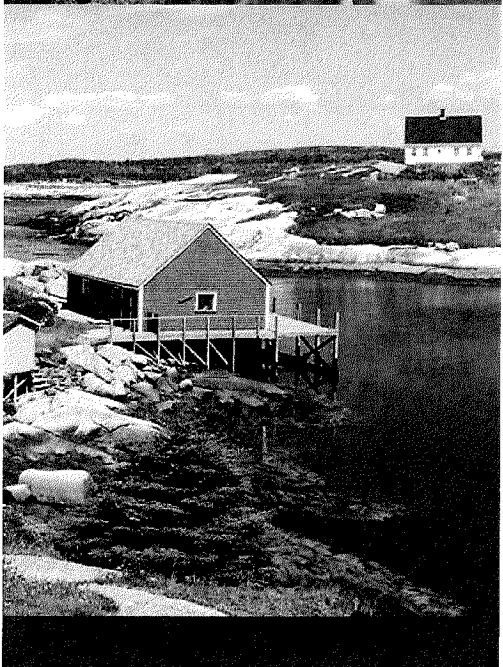
Fostering strong, thriving rural communities builds better lives for millions of Canadians—and helps set this entire country on a path to sustainable prosperity.

Rural, northern and remote communities are home to key industries—from agriculture and natural resources to manufacturing and tourism. Together, they drive nearly one-third of Canada's economy.



Rural communities face distinct challenges arising from their geography, climate, demographics and more. These can't be tackled effectively with cookie-cutter federal approaches. We make the best progress together when federal tools equip local leaders to leverage local expertise—to deliver cost-effective solutions that work.

That's why it's so important to apply a rural lens to federal policies and programs. In practice, that might mean adapting funding eligibility criteria or streamlining processes to account for local realities. Fundamentally, it means bringing rural expertise to the table, more often, as national solutions are developed.



Moving forward on urgent priorities will deliver swift benefits. Expanding rural Internet access means more entrepreneurs can access more markets, doctors can access patient records faster, and students can study from anywhere. Reliably supporting local disaster mitigation protects people living in rural communities—communities that disproportionately bear the costs of adapting Canada to new climate extremes.

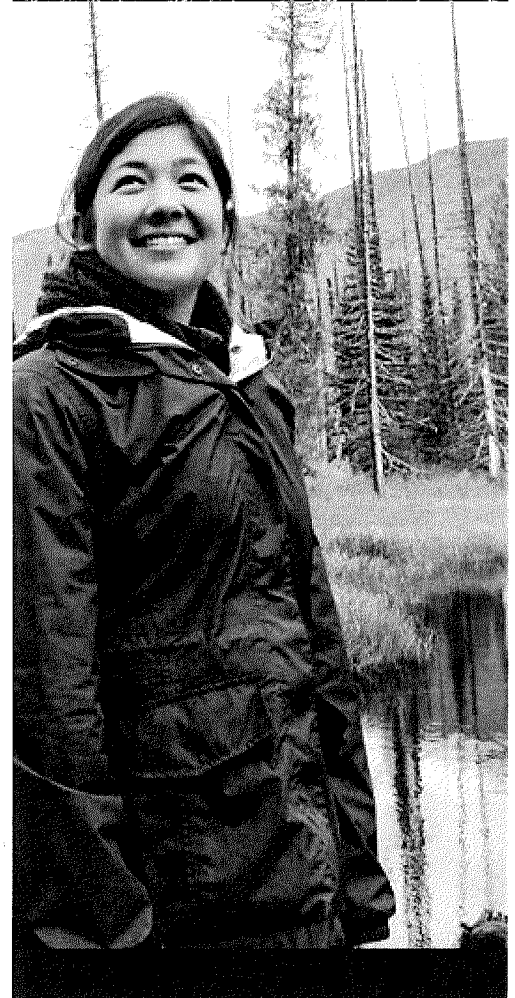
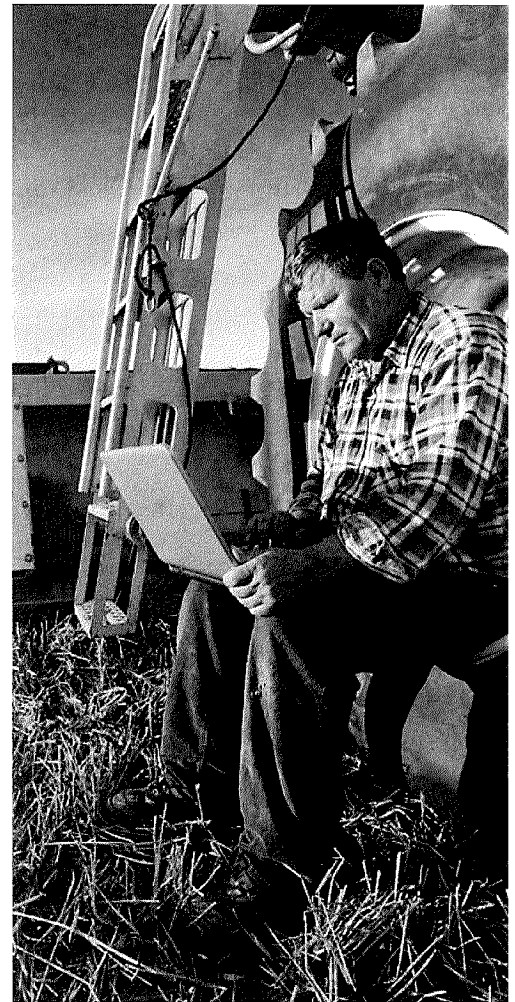
Progress highlights

The **Investing in Canada Infrastructure Program (ICIP)** has strengthened federal investment in rural, northern and remote communities. Over a decade, ICIP's rural and northern stream is supporting better roads and bridges, clean water, wastewater treatment and a range of rural transportation priorities. Various ICIP funding streams are already kick-starting everything from a new multi-use community complex in Centreville, New Brunswick; to major upgrades to a trail system around Fort Simpson, Northwest Territories; to a new water treatment plant for Powell River, BC; to \$112 million in upgrades to rural highways, roads and bridges across Canada. ICIP recognizes the financial realities of rural governments by boosting federal cost-sharing to 50 percent—up to 60 percent in communities with populations under 5,000, and up to 75 percent in the Territories.

Meanwhile, the **one-time doubling of the Gas Tax Fund (GTF) transfer** implemented through Budget 2019 delivered an immediate boost to the tool rural communities rely on most for infrastructure renewal. Dawson City, Yukon, is using its GTF top-up to upgrade critical drinking water infrastructure. From Mahone Bay, Nova Scotia, to Air Ronge, Saskatchewan, residents will see additional road improvements. Across the country, rural municipalities are making the most of this direct funding tool that recognizes that they are best placed to identify urgent local priorities.

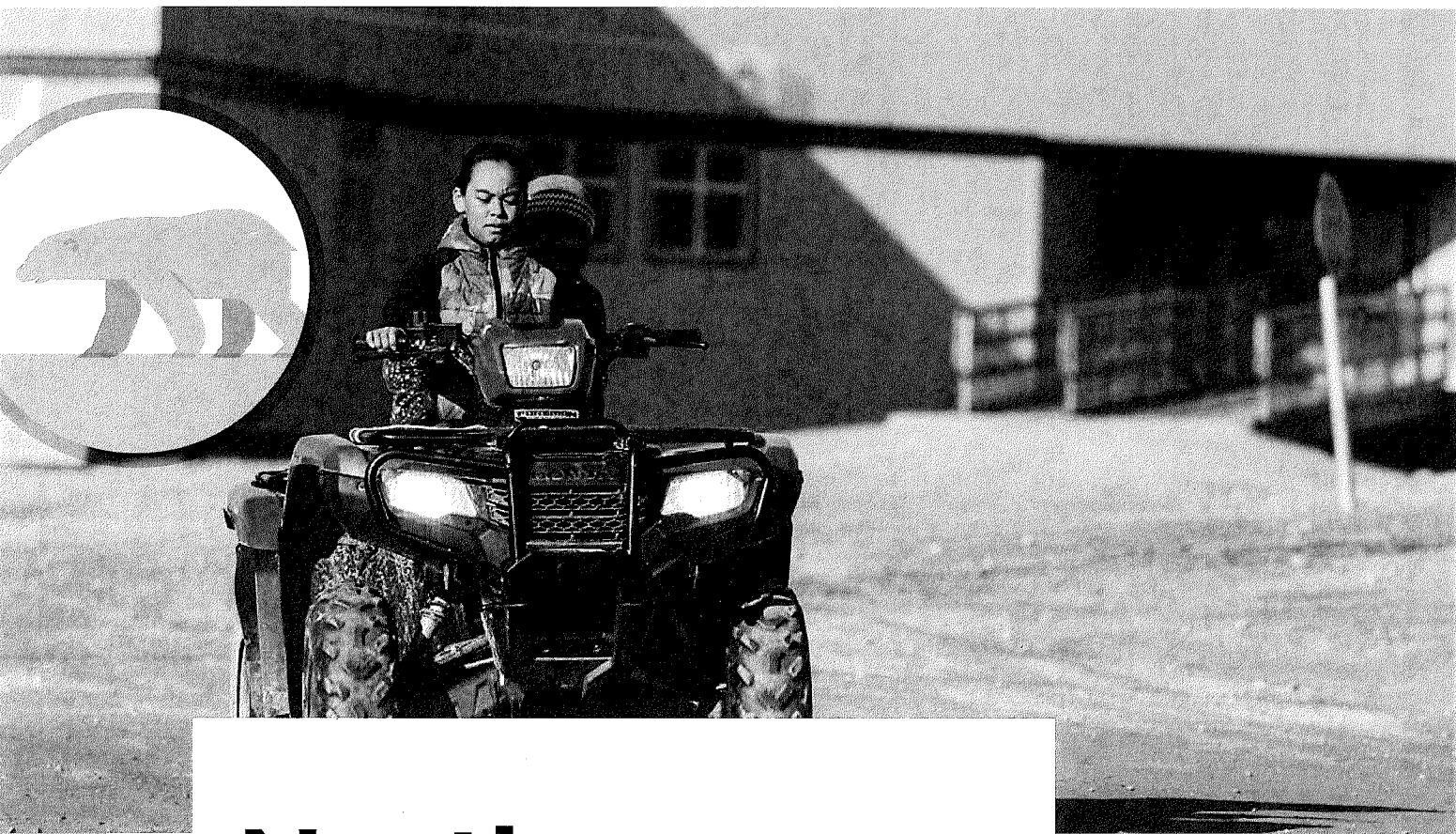
Budget 2019 also committed unprecedented new funding—\$2.7 billion over a decade—to help achieve the goal of **universal high-speed Internet access**. Following up, the government's national connectivity strategy (*High-Speed Access for All*) responds to FCM recommendations to prioritize improved access for rural households and businesses. Together, this funding and this strategy set the table for historic progress on the rural Internet gap—if we move forward, together, with urgency.

In January 2019, the federal government named Canada's first **Minister of Rural Economic Development**. Municipalities welcomed this encouraging response to FCM's advocacy for deeper federal engagement with rural Canada. By June 2019, Canada's new **rural economic development strategy** (*Rural Opportunities, National Prosperity*) was responding to FCM's call to build a "rural lens" into federal government. It specifically recognizes the need to empower rural communities by bringing more rural voices to the decision-making table, and to streamline funding processes to ease administrative burdens for rural and small local governments.



Next steps

- **Prioritize rural high-speed Internet access** by maintaining or exceeding recent broadband investments; committing to clear standards and timelines to achieve CRTC speed targets; developing a new target for rural and northern mobile access; and engaging communities in developing strategies to close the broadband gap.
(See *Telecom & broadband*.)
- **Continue incorporating a “rural lens” into the heart of government**, building on the 2019 rural economic development strategy (*Rural Opportunities, National Prosperity*)—by adapting programs and policies, and streamlining funding tools, to reflect the realities and expertise of rural and small communities.
- **Support a range of rural mobility solutions** by:
 - ▶ Ensuring a new permanent transit funding mechanism includes a merit-based component to address challenges that can't be met by ridership-based allocations alone—including regional bus, para-transit and seniors shuttles services.
(See *Modern public transit*.)
 - ▶ Working with municipalities in the short term to address gaps in inter-city transportation services, avoiding a one-size-fits-all approach.
- **Empower rural communities to adapt to climate extremes** by adopting FCM's recommendations for immediate and long-term adaptation funding—while re-evaluating the Disaster Mitigation and Adaptation Fund's \$20 million project eligibility threshold so communities of all sizes can qualify.
(See *Climate action*.)
- **Support seniors in rural communities** to age safely and affordably in their homes, by introducing a program that offsets the cost of home adaptations, including grab bars, ramps and lifts.
- **Support greater immigration and economic growth in rural communities** through programs such as the 5-year Rural and Northern Immigration Pilot, the Atlantic Immigration Pilot and the proposed Municipal Nominee Program.
(See *Immigration*.)
- **Implement a Tourism Community Infrastructure Fund**, as committed in the Liberal Party platform, to support local needs of communities that rely on tourism, with \$25 million delivered annually through the regional economic development agencies.
- **Introduce housing data enhancements** that provide more frequent reporting on rural housing markets, including demand, supply and affordability metrics.



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Northern priorities

Local governments are building better lives for Canadians living in our three territories, Labrador, and the northern regions of six provinces. And their message is clear: unlocking the tremendous potential of our northern economy depends on having people and infrastructure in place—while adapting our communities to impacts of our changing climate.

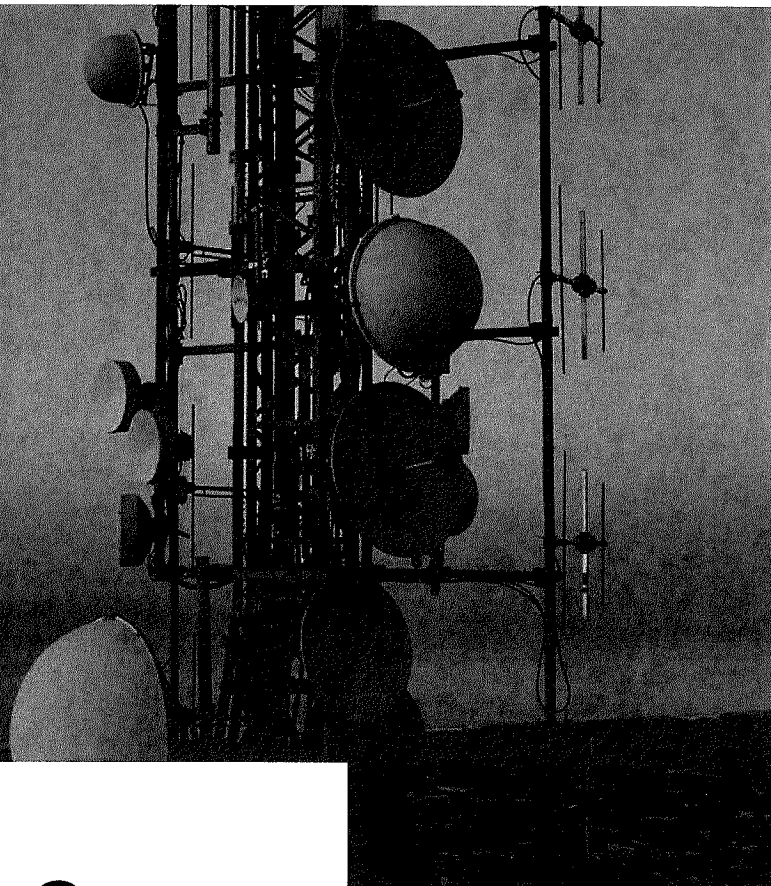
Resource-driven development based on fly-in camps does not automatically benefit northerners themselves. That requires strategies to support economic diversification, along with infrastructure that supports sustainable communities, and that connects them to each other and the rest of Canada.

Local leaders come to the table with indispensable expertise on local challenges arising from their climate, isolation, terrain, demographics, high costs and other socio-economic realities. So moving forward requires smart, long-term federal support—but also a commitment to engage territorial and local governments in its design and delivery.

Next steps

In addition to next steps laid out under *Rural progress*:

- **Actively account for northern realities** in designing policies, programs and funding tools—engaging northern expertise through FCM to ensure federal initiatives drive real, cost-effective outcomes in our communities.
- **Recognize the urgency of scaling up flexible funding tools in the North**—including a scaled-up Disaster Mitigation and Adaptation Fund (see *Climate action*) and a scaled-up Gas Tax Fund transfer for core infrastructure renewal (see *Strong infrastructure*).
- **Ensure the proposed Clean Power Fund is accessible** to northern and remote communities to support their transition from diesel-fueled power to clean, renewable energy sources.
- **Tackle northern housing affordability challenges** by launching two housing construction programs—for supportive housing, and for affordable housing for Indigenous households—with \$100,000 per-unit northern top-ups that recognize higher local building costs (see *Housing affordability*).
- **Engage northern and remote community governments**, through FCM and the provincial and territorial municipal associations, in the implementation of the newly launched Arctic and Northern Policy Framework.



Telecom & broadband

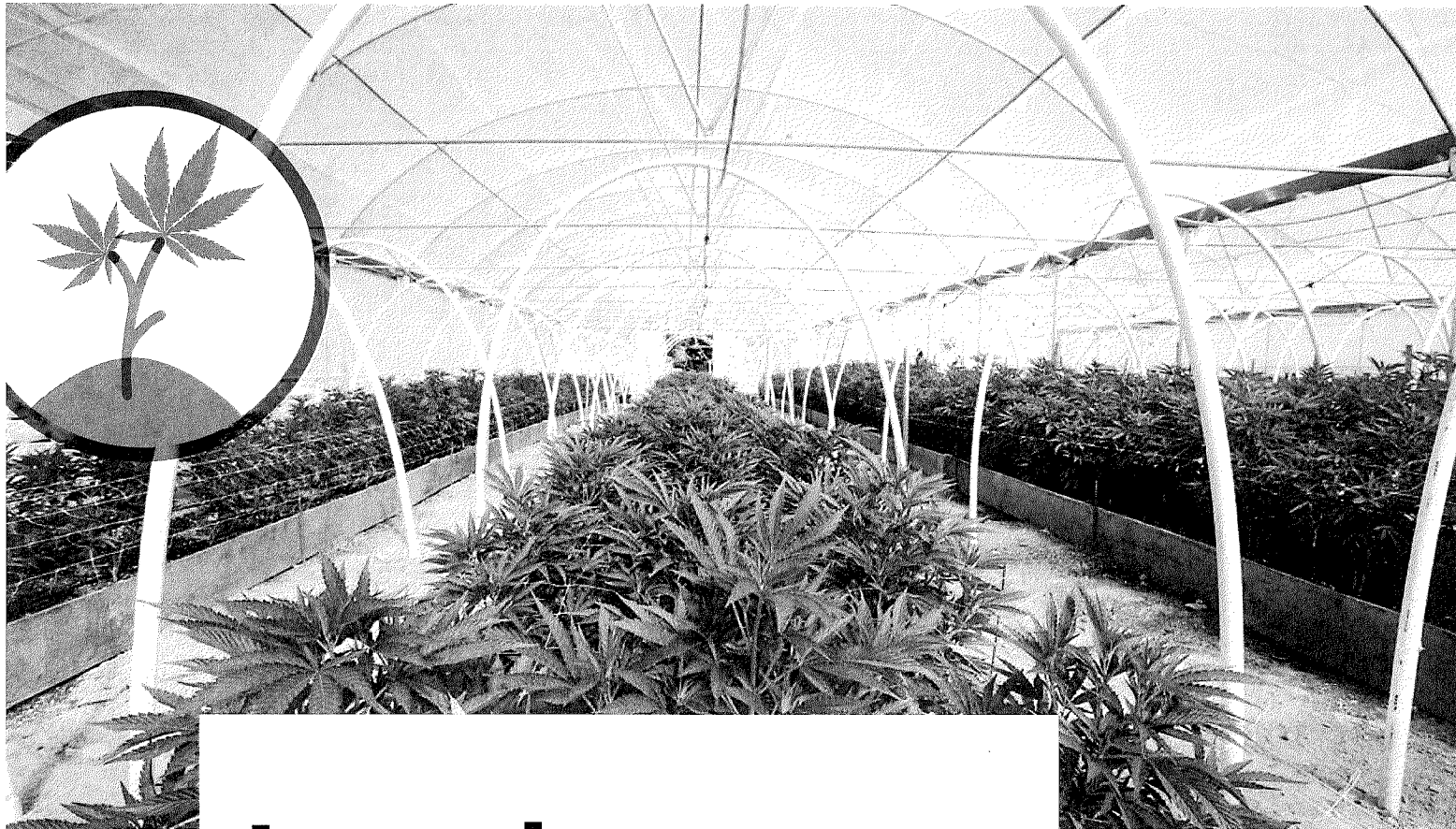
Municipalities are key *partners* in managing and growing the full suite of telecommunications infrastructure that underpins Canada's economy. We're also recognized as nationwide *champions* for bold action to close the rural-urban Internet access gap.

Two million Canadian households still can't access the reliable Internet connection that's so vital to our economy and quality of life. FCM has worked with successive governments to start closing that gap, leading to Budget 2019 investments worth \$2.7 billion over a decade.

We're ready to help build on those new investments and ensure they drive real frontline outcomes. And we stand ready to help guide the modernization of the *Telecommunications Act*—respecting municipalities' role in managing public space for the benefit of all users, while ensuring new cost burdens do not fall onto local property taxpayers.

Next steps

- **Maintain or exceed recent federal broadband investments**, and commit to clear standards and timelines to achieve CRTC Internet service objectives (50/10 Mbps) in communities of all sizes across Canada.
- **Develop a new target for rural and northern mobile access**, and re-evaluate targets for fixed and mobile broadband on a regular basis—ensuring northern and remote communities do not continue to fall behind.
- **Engage FCM in developing a response to the *Telecommunications Act* review**, ensuring federal legislation and policy achieves the following:
 - ▶ Maintains municipalities' legislated role in managing public space—particularly vital right-of-way corridors—for the benefit of all users, building on our federal-municipal partnership.
 - ▶ Ensures legislative or policy changes do not indirectly transfer costs to local property taxpayers (e.g. via congestion, changes to landscape, or damage to infrastructure).
 - ▶ Ensures municipal rights-of-way jurisdiction is respected as new technologies such as 5G are developed (including by maintaining jurisdiction between the CRTC and Innovation, Science and Economic Development Canada in governance of “small cell” antennas).
 - ▶ Support a national broadband strategy with elements that enhance accountability, transparency and cooperation among federal agencies, orders of government and industry to improve service across rural Canada.
- **Engage rural municipalities**, through FCM, in developing and implementing additional programs and strategies to eliminate Canada's broadband Internet gap.



Legal cannabis

Our communities are the places where—as of October 2018—non-medical cannabis is legally produced, sold and consumed. To keep people safe and well-served for the long term, municipalities need adequate funding tools.

Legalization has required new bylaws and processes for local police and up to 17 other departments. It has also brought new responsibilities ranging from land use management to business licensing and enforcement. And this expanded mandate comes with real ongoing costs.

Despite Ottawa's intent to help fund local costs through provinces, many provinces still haven't shown how funds will flow to municipalities. One year in, we stand ready to work with this government to ensure municipalities have the right tools to successfully and sustainably implement this marquee federal initiative to legalize cannabis.

Next steps

- **Recognize that municipalities require long-term financial tools** to fully and sustainably cover operational and enforcement costs of cannabis legalization—as a baseline requirement of keeping Canadians safe and well-served.
- **Ensure the long-term cannabis excise tax revenue sharing agreement** between the federal government and provinces and territories includes a transparent and predictable mechanism for covering municipal costs.



Substance use

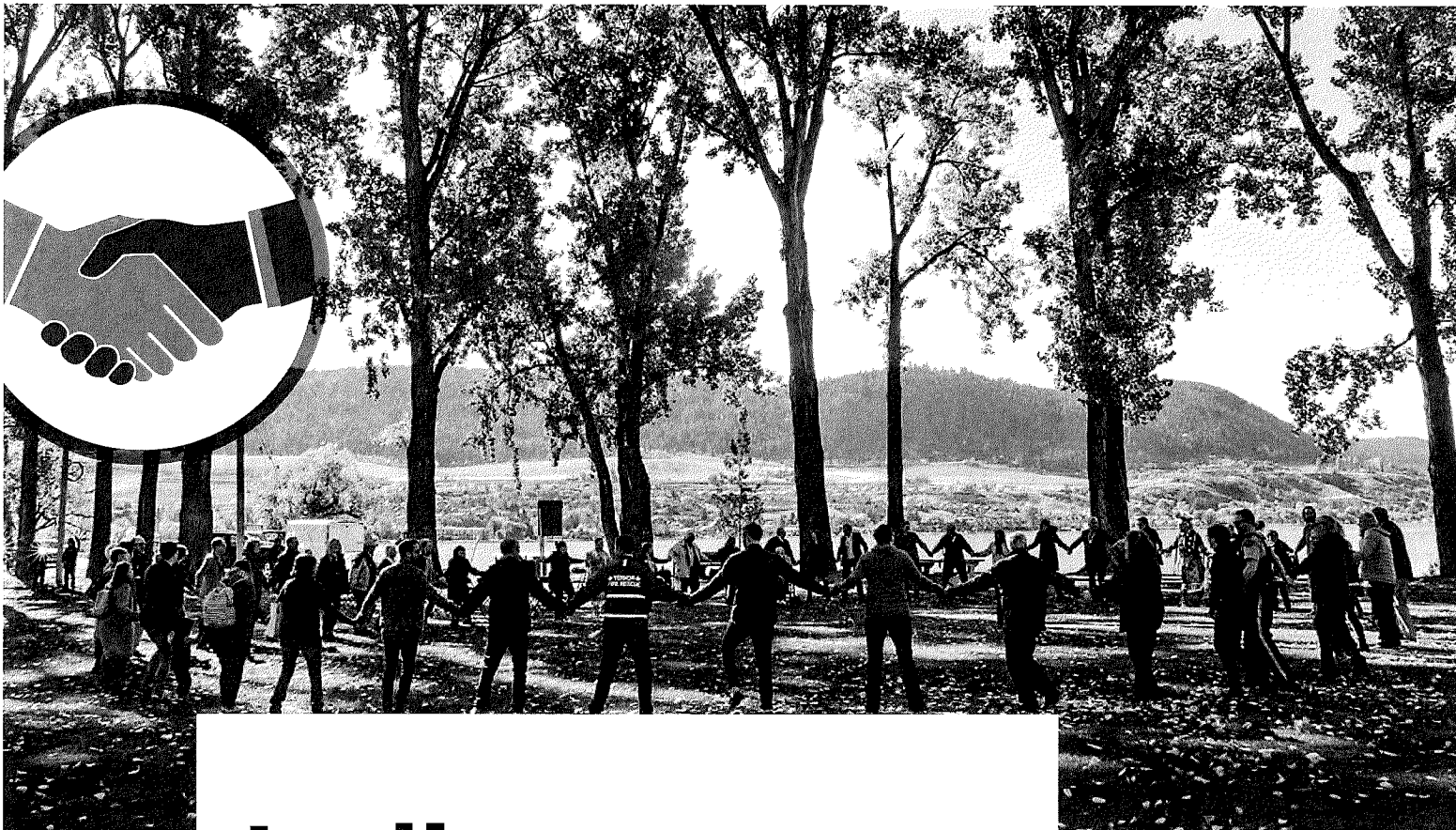
From opioids to methamphetamines, this country faces a public health emergency fuelled by a poisoned drug supply. Orders of government need to work together, with renewed urgency, to tackle this crisis in an enduring way.

Local first responders are on the front lines, reviving people from overdoses, distributing overdose-prevention drugs and educating the public about the drug supply. Municipalities are piloting and implementing community-based solutions.

With early leadership from our Big City Mayors' Caucus and its Task Force on the Opioid Crisis, FCM led the call for a coordinated national response. And this national crisis requires sustained and expanded federal leadership to scale up all aspects of that response.

Next steps

- **Expand access to a variety of treatment options**, including harm reduction, by implementing election platform commitments—ensuring that the approaches supported federally are those identified by communities, and that they bolster local capacity to tackle this public health emergency.
- **Improve access to safe-supply programs** to treat substance use disorder—supporting doctors, health authorities, provinces and professional colleges to provide regulated substances free of charge through the health care system.
- **Invest in the construction of new supportive housing**, expanding this proven pathway to recovery for those dealing with substance use, mental illness and other challenges. (See *Housing affordability*.)



Indigenous partnership

Strengthening Canada's relationship with Indigenous peoples is an essential and long-term effort in which all orders of government must be engaged. And our federal-municipal partnership is key to moving forward.

Municipal leaders are doing their part to enable local reconciliation, building relationships with Indigenous peoples and governments—based on respect for rights and an honest understanding of history. With support from FCM's federally-funded Community Economic Development Initiative, they are building better lives with neighbouring First Nations through joint economic development partnerships.

We want to build a better Canada where Indigenous people have full and fair opportunities to thrive—including the over 60 percent who live in the cities and communities that we administer as local governments.

Next steps

- **Support construction or acquisition/rehabilitation of culturally appropriate social and affordable housing** for Indigenous households in our communities—beyond existing National Housing Strategy funding—developed in deep collaboration with the Indigenous housing sector.
(See *Housing affordability*.)
- **Continue advancing reconciliation** by addressing past injustices and contemporary inequities—taking the lead of National Indigenous Organizations while engaging Indigenous and non-Indigenous communities in ongoing efforts to build better lives.
- **Enhance federal investment in Indigenous people and organizations** in urban, rural and remote communities—including through initiatives such as the Urban Programming for Indigenous Peoples Framework.



Gun and gang violence

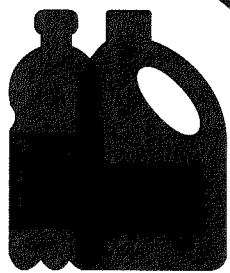
In a global context, Canada's cities and communities are very safe places to live. And we're working to make them safer—through local policing, crime prevention strategies, social development and wide-ranging efforts to boost our local quality of life.

One of our toughest contemporary challenges is gang activity that too often erupts as gun violence in public spaces. Communities of all sizes are responding with a full range of prevention, intervention and enforcement efforts—to keep our families safe and discourage young people from getting involved with gangs, drugs and violence.

This remains a challenge for all orders of government, and we welcome federal efforts to tackle gang violence. A key to lasting progress will be to deepen engagement with frontline local governments in the design and delivery of new and expanded federal programs.

Next steps

- **Support crime prevention through social development**, ensuring municipalities have the tools to invest in social foundations of our communities—including shelter, libraries, health facilities, parks, recreation facilities, and support for cultural development.
- **Engage FCM and municipalities in the design and implementation** of federal programs that address gun and gang violence in our cities and communities, including the Liberal Party platform commitment to invest an additional \$50 million per year over five years to help municipalities meet the needs of communities at risk.
- **Respect the following principles in designing new programs:**
 - ▶ Dedicate a sufficient portion of funding to local governments for their most urgent needs, recognizing the critical role of municipal services in responding to gun and gang violence.
 - ▶ Support a full range of municipally-defined prevention, intervention and enforcement efforts in communities of all sizes.
 - ▶ Provide both short-term funding for pilot projects to promote innovation, and long-term funding for established initiatives to ensure their sustainability.
 - ▶ Streamline application, data collection and reporting requirements to make funding accessible to both institutional and grassroots initiatives.

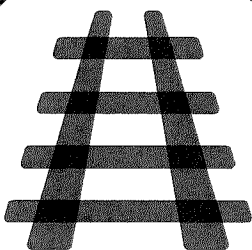


Plastic waste

Reducing plastic waste is a complex challenge that will require collaboration among industry and all orders of government. Federal leadership is needed to establish the conditions that will enable Canada to move towards a more circular economy for plastics.

Next steps

- **Make industry responsible for the full lifecycle** of products and packaging, using federal powers under the *Canadian Environmental Protection Act* to establish a national framework for Extended Producer Responsibility.
- **Support a transition to a circular economy for plastics**, by introducing complementary recycled content requirements and government procurement policies, and by supporting the expansion of local recycling capacity.



Rail safety

Rail transportation supports our economy and quality of life. But the tragic derailment and explosion in Lac-Mégantic, Quebec, highlighted the risks of transporting dangerous goods through our communities. While progress has been made in recent years, the federal government must continue to prioritize measures to improve rail safety.

Next steps

- **Expand engagement with municipalities on rail safety**—as recommended by the *Railway Safety Act* review—ensuring the Transport Canada oversight regime is informed by their technical knowledge and frontline expertise.
- **Continue to expand funding for grade crossing safety improvements**, including crossing openings, closures and grade separations, in order to reduce trespassing and improve pedestrian safety.

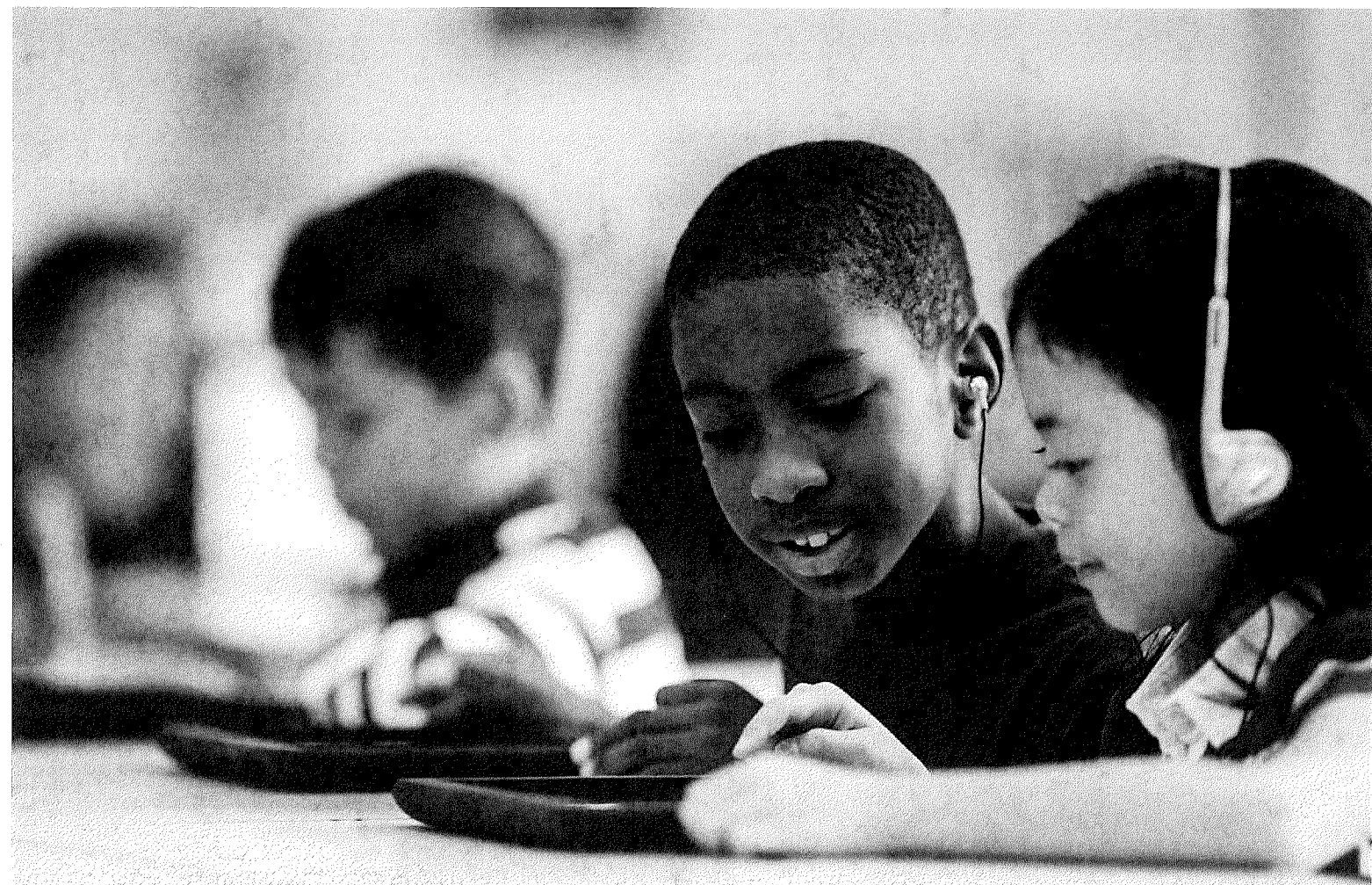


Immigration

Immigration is central to the future growth, economic security and cultural diversity of our cities and communities. The Municipal Nominee Program proposed in the Liberal Party platform is an important new tool that will enable local governments to work with the immigration system to attract and support new Canadians.

Next steps

- **Engage municipalities**, through FCM, in the design of the Municipal Nominee Program to ensure it enables municipalities of all sizes and capacities to nominate and welcome immigrants, helping to ensure future growth and enriching the cultural milieu of our communities.





FCM.ca



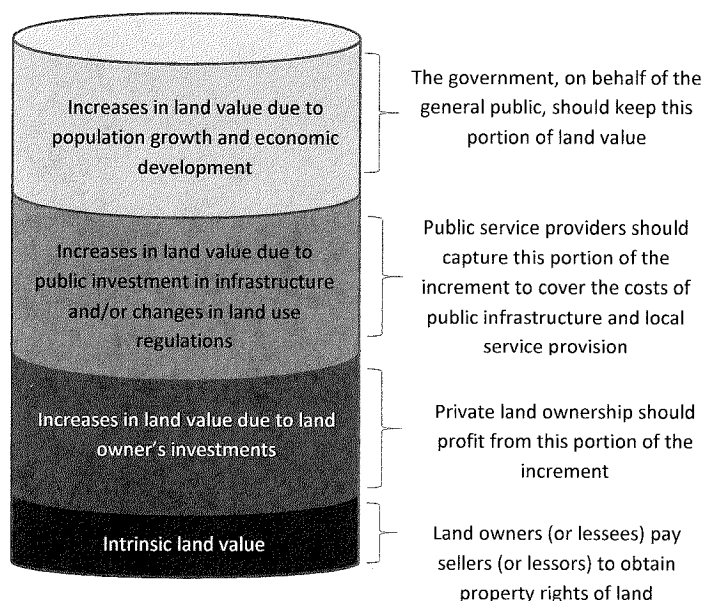
LAND VALUE CAPTURE

WHAT IS LAND VALUE CAPTURE?

Land Value Capture (LVC) is a way to **capture the increase in value of land and development generated by public investment**, changes in regulation (e.g. increased density, building height), population growth and/or economic development. LVC capture is often discussed in conjunction with public transit investments because the ties between public transit investments and increases in adjacent land are well documented.

The argument behind LVC for infrastructure is that at least some of the resulting increase land value should be **captured by governments to pay for infrastructure**.

CONCEPT OF LAND VALUE CAPTURE



BENEFITS OF LVC

- It helps **economic growth** to be achieved in an environmentally sustainable way.
- It helps build a **more competitive** city region and a **higher quality of life** for its residents and businesses.
- It helps build **sustainable, healthier** communities.

- It helps **reduce the cost of living**.
- It helps **reduce congestion** and pollution.

LVC IS NOT NEW IN CANADA

Canada was at the forefront of using LVC to fund its rail infrastructure. The Canadian Pacific Railway (CPR) was partly financed through giving development rights for a 48-mile corridor along the route to the promoters of the railway. Similarly, in London, England the underground Metropolitan Line captured land value uplift around the stations to generate the profits to fund the next section of the line.

Canadian cities continue to work with various land value capture tools (outlined in the next section). However, these **tools are not available to all cities** and are **not being used to their full potential** in major urban centres. In 2013, Metrolinx published a discussion paper contemplating ways for Toronto and the GTHA to make better use of LVC.

LVC IS NOT NEW IN AUSTRALIA EITHER

As early as the 1920s, state governments were using levies on property surrounding new transport links to help fund projects such as the Sydney Harbour Bridge and Darling to Glen Waverley rail extension in Melbourne.

Today, **Australia is looking for ways to use LVC to help deliver major land transport infrastructure because, like Canada, a comprehensive national approach to value capture has not been widely implemented.** LVC is already being used by state, territory and local governments through their responsibilities for land and property planning and management; and ownership of infrastructure. State governments are showing an increasing interest in implement value capture approaches on a more consistent basis.

New South Wales is developing a value sharing framework to help guide the use of LVC mechanisms for state government projects and has committed to using value capture for projects, including the Parramatta Light Rail. Victoria, Queensland and the Western Australian Government are also exploring LVC approaches to fund projects.

SOME WAYS OF CAPTURING LAND VALUE

- **BETTERMENT LEVIES/SPECIAL ASSESSMENTS/DEVELOPMENT CHARGES**
 - This can be a **direct charge on owners of select properties** to pay for infrastructure or services that benefit their properties (e.g., street lighting , sidewalks, extension of water supply networks)
 - Could be a one time or annual levy
 - Relates tax to benefits received
 - For example, **Toronto** levied a special assessment for transit in the early 1990s; development charges are used by select cities in **Ontario, BC, Alberta and Nova Scotia**

(development charges are fees collected from developers at the time a building permit is issued to help pay for the cost of infrastructure required to provide municipal services to new developments); **Australia** also employs developer contributions

➤ **TAX INCREMENT FINANCING**

- This can be implemented through first designating a Tax Increment Financing (TIF) area and earmarking future growth in property taxes in that area to pay for infrastructure investments
- Governments can borrow (issue TIF bonds) on the basis of anticipated increased property tax revenues
- This has been used as an economic development tool in the US and UK

➤ **SALE OF BUILDING RIGHTS**

- This is a way of capturing land value increase from a **change in land use regulations** (e.g., taller buildings, higher density, etc.) It is also known as density bonusing.
- Additional development rights over and above existing zoning are sold to developers and revenues used to pay for community infrastructure.
- Developers can make cash or in-kind contributions.
- For example, density bonusing is used in Toronto (under Section 37 of the Planning Act) as are community amenity contributions in Vancouver

➤ **JOINT DEVELOPMENT/PROPERTY DEVELOPMENT/PUBLIC-PRIVATE PARTNERSHIP**

- Another land value capture approach is deriving revenues from **profit sharing** with private developers in real estate sales and/or through renting out properties close to or attached to public transit
- For example, the Hong Kong Mass Transit Railway Corporation (MTRC), a public body, operates without government subsidy by profit sharing with private developers on the sale of residential units tied to public transit developments and by renting or leasing commercial units in these transit oriented developments
- E.g. The Washington Metropolitan Area Transit Authority (WMATA) has also been implementing joint development ventures since 1975.

ISSUES WITH LAND VALUE CAPTURE

- **Acceptance** of the principle and the benefits of LVC
- Requires a **positive relationship** between public and private sector stakeholders
- **How to estimate** the increment arising from public investment or change in regulations
- Determining **who should benefit** from the increase in land value
- The amount of money that can be raised (LVC is **not appropriate for all projects**)

RESOURCES

https://munkschool.utoronto.ca/imfg/uploads/305/dpa_munk_lvc_presentation.pdf

https://munkschool.utoronto.ca/imfg/uploads/431/imfgpaper_no33_land_value_capture_abigail_friendly_july_12_2017.pdf

https://munkschool.utoronto.ca/imfg/uploads/366/slack_presentation_landvaluecapture_saintlucia_november92_016.pdf

<http://uttri.utoronto.ca/files/2017/10/16-02-04-02-Transit-and-Land-Value-Uplift-An-Introduction.pdf>

<http://www.unescap.org/sites/default/files/Case%204-%20Land%20Value%20-%20Hong-Kong%20MTR.pdf>

http://www.metrolinx.com/en/regionalplanning/funding/Land_Value_Capture_Discussion_Paper_EN.pdf

http://investment.infrastructure.gov.au/files/value_capture/Value-Capture-Discussion-Paper.pdf

**Pages 126 to 138
are withheld
pursuant to paragraphs
14, 21(1)(a) and 21(1)(b)
of the *Access to Information Act*.
In addition, some information was severed as
agreed upon with the requester.**

**Les pages 126 à 138
Font l'objet d'une exception totale
conformément aux dispositions des
paragraphes
14, 21(1)(a) et 21(1)(b)
de la loi sur l'accès à l'information.
De plus, certaines informations ont été
protégées comme convenu avec le
demandeur.**



SCENARIO NOTE TO THE DEPUTY MINISTER

MEETING BETWEEN
THE DEPUTY MINISTER OF INFRASTRUCTURE AND COMMUNITIES
AND THE EXECUTIVE DIRECTOR, RENEWABLE CITIES

MEETING DETAILS

- **DATE/TIME:** Friday, February 21, 2020 at 2:00 p.m.
- **LOCATION:** DM's Office (teleconference)
- **PARTICIPANTS:**
 - Kelly Gillis, Deputy Minister of Infrastructure Canada
 - Gerard Peets, Assistant Deputy Minister, Policy and Results, Infrastructure Canada
 - Alex Boston, Executive Director, Renewable Cities, Simon Fraser University (biography at **Annex A**)

PURPOSEHIGHLIGHTS/KEY CONSIDERATIONS

- Alex Boston is a proponent of linking federal public transit investments to environmental and social outcomes that can be achieved through effective long-term planning decisions.
 - Through a number of op-eds appearing in the Hill Times, as well as a presentation to the House Standing Committee on Transportation, Infrastructure, and Communities, Boston has previously called upon the Government of Canada to use its resources to incentivize smart, compact communities rather than perpetuate sprawl (see **Annexes B, C, and D**).
- Transit-oriented development is a key tool in developing compact cities. This occurs through housing densification and job clustering around transit infrastructure. In addition to generating significant GHG reductions associated with modal shift, reduced overall travel distances, and a more energy-efficient built environment, transit-oriented cities have lower service costs than low-density sprawl.
- In his op-ed and past interactions with Infrastructure Canada, Mr. Boston has suggested that transit planning must be effectively integrated into both broader transportation planning as well as local land use planning. This can prevent new

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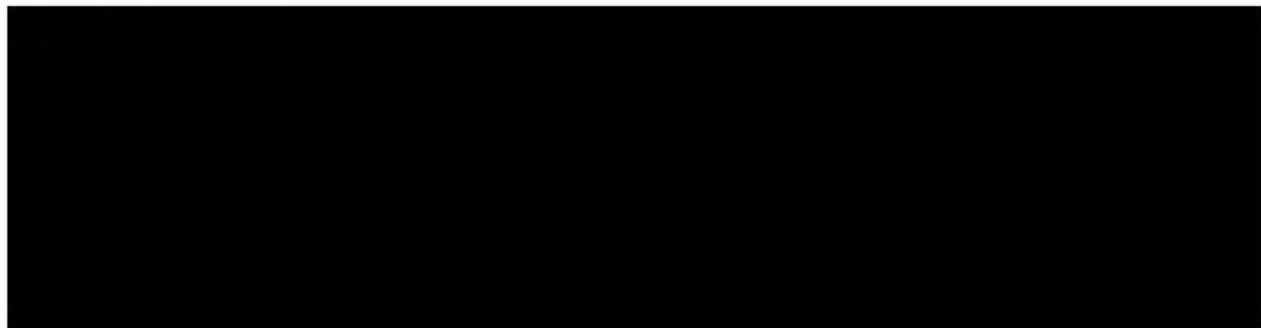
transit developments from enabling further suburban growth and increasing emissions through more personal vehicle use. The op-ed notes:

The majority of today's highest-cost [transit] projects are pushing rails into forest and farmland, serving low-density, distributed developments that increase carbon emissions, congestion, and commute times. The further homes are from job centres, even if located on rapid transit or commuter rail, the more families drive.



- As part of the provincial Budget released on February 18, 2020, British Columbia announced its intention to pursue an integrated transportation and development process that will link transportation and housing investments to land use planning, and consider the needs of provincial and national trade corridors (See **Annexes E and F**).

KEY BACKGROUND



The California Model

- Mr. Boston often points to California for strong examples of effectively integrated regional transportation planning. This is because the state has mandated integrated regional transportation plans as the basis for state and federal funding, and these plans must include a Sustainable Communities Strategy (see **Annex F**).
 - The sustainable communities strategy identifies how the planning organization proposes to reduce greenhouse gas emissions from cars and light trucks through integrated land use, transportation, and housing

SECRET

planning. The sustainable communities strategy must strive to meet regional greenhouse gas reduction targets set by the California Air Resources Board if there is a feasible way to do so.

- Only projects that are included in these regional plans and aligned with the sustainable community strategy can advance onto the Transportation Improvement Program (TIP) and be considered for state or federal funding.
 - Development and approval of the TIP is a multi-step process, involving regional and inter-regional components, that takes place every two years. Portions of the program seeking state or federal funding must be reviewed and approved by the California Transportation Commission, whose members are appointed by the Governor, state Senate, and Speaker of the Assembly.

British Columbia's Integrated Transportation and Development Process

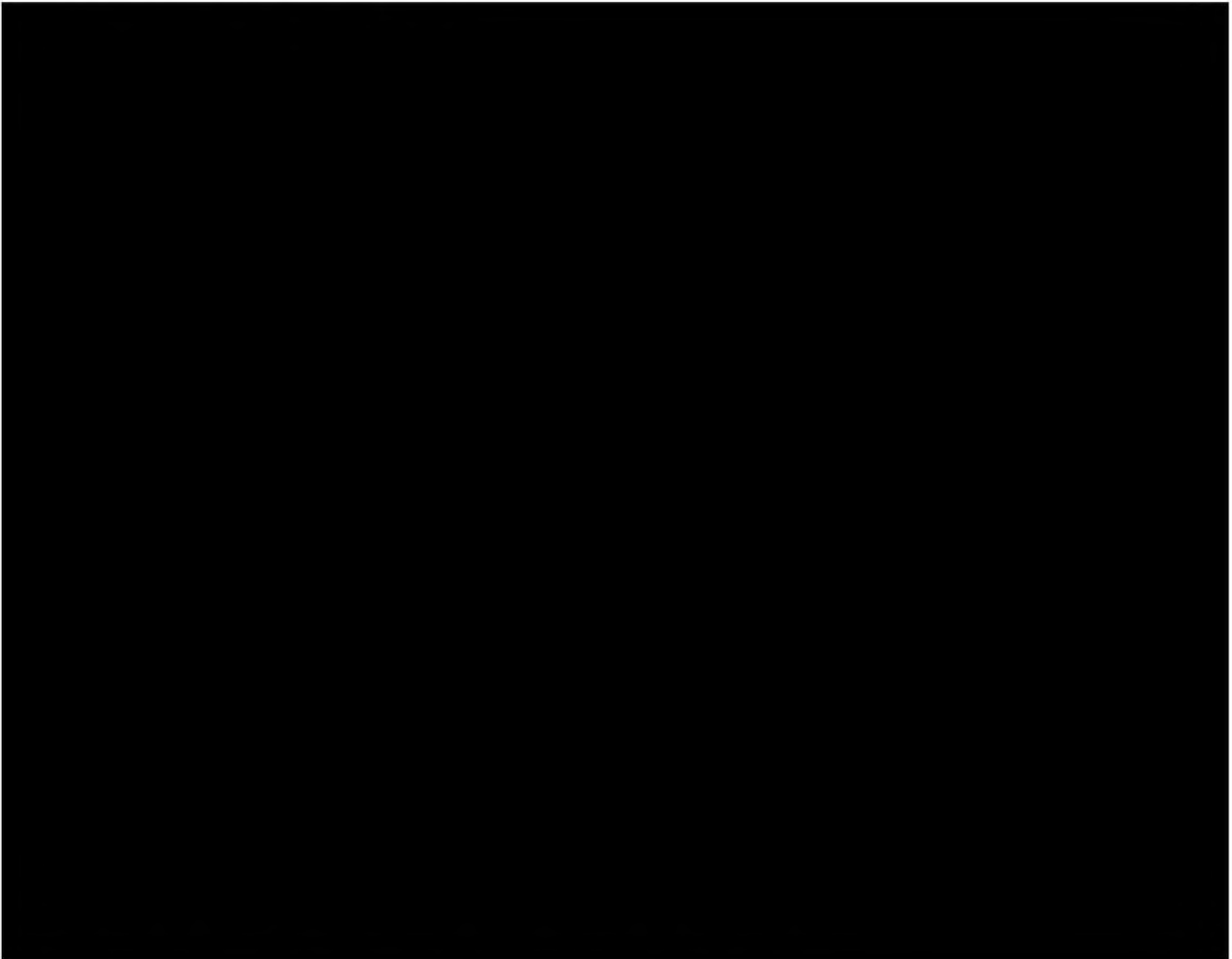
- British Columbia announced the creation of an Integrated Transportation and Development Process (ITDP) as part of its Budget tabled on February 18, 2020.
- The Budget notes that "this process will develop a collaborative vision for BC's transportation and affordable development needs that contribute to an efficient and accessible multi-modal transportation network that connects communities, regions, and global markets."



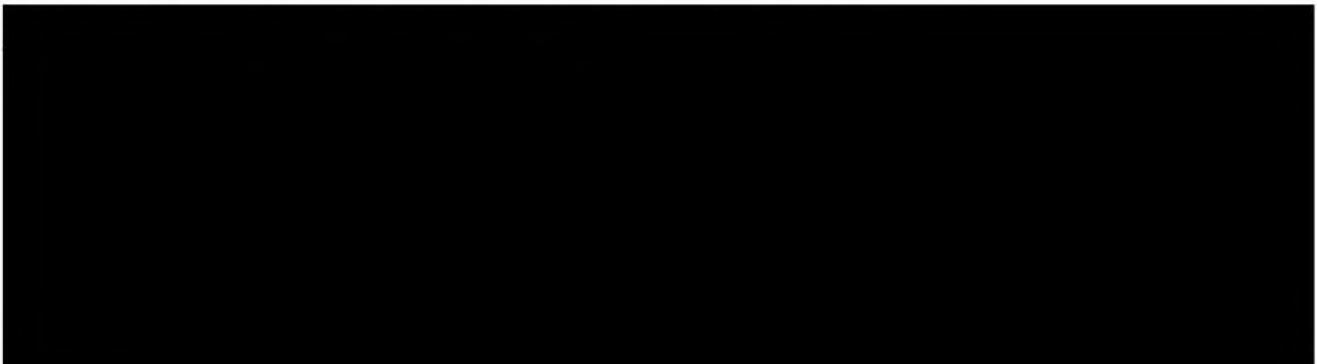
- The Fraser Valley study will be a partnership between the provincial government's ministries, TransLink and BC Transit. Part of its scope includes the exploration of a commuter rail link between Metro Vancouver and the Fraser Valley. The study will involve extensive consultation with municipal governments, stakeholders, and the general public.
- No new major funding for transportation infrastructure projects is identified in the budget, although it is noted that capital investments from transportation will total \$7.4 billion over the next three years.

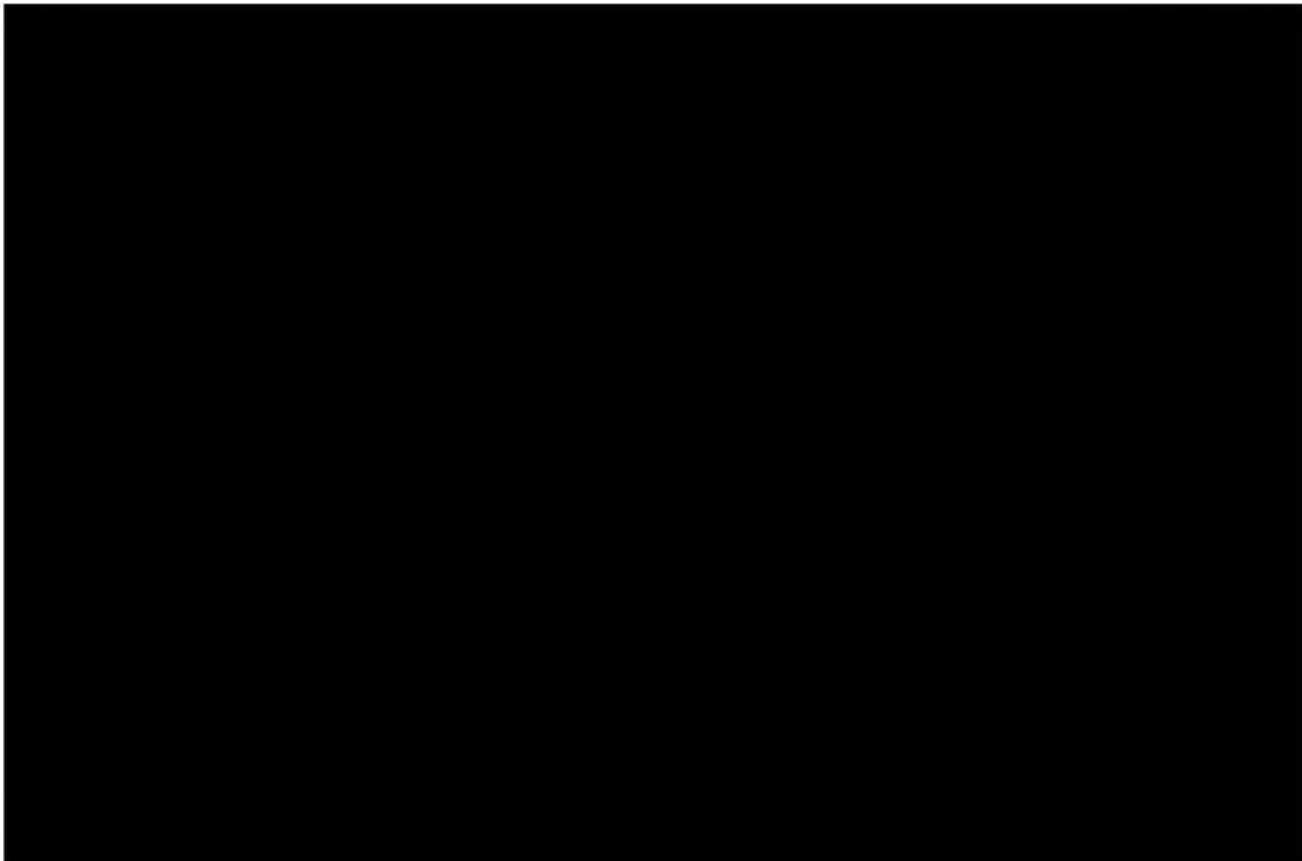
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Shaping the Federal Policy Frame



PROPOSED TALKING POINTS/PROPOSED QUESTIONS



SECRET**Attachments:**

- Annex A – Biography
- Annex B – Op-ed: Federal transit spending could sustain high cost, high carbon cities
- Annex C – Op-ed: Team Canada needs an own-the-podium urban infrastructure program
- Annex D – Presentation to HOC Committee on Transportation Infrastructure and Communities
- Annex E – Transportation and land-use plan coming for Fraser Valley
- Annex F – New integrated Fraser Valley commuter rail and housing study to move ahead
- Annex G – Understanding California SB 375: Regional Planning for Transportation, Housing and the Environment

ANNEX A: BIOGRAPHIES OF ATTENDEES

Alex Boston,



Executive Director of Renewable Cities, Simon Fraser University

Before establishing his own consultancy, Alex led community climate and energy services for an urban planning and design firm, and a global engineering operation, Golder Associates. He led multiple award-winning community energy plans recognized for carbon modeling and mapping, implementation readiness, and triple bottom line analysis. Alex earned his Masters of Science at Oxford's Environmental Change Institute.

His organization, Renewable Cities, is a global program of Simon Fraser University's Morris J. Wosk Centre for Dialogue in Vancouver. Its mission is to support cities through the transition to 100% renewable energy and increased energy efficiency.

Alex developed FCM's best practice guide for GHG target setting, and was principal advisor on Climate Protection Program Renewal. He advised Prime Minister Martin's Task Force on Cities on the federal role in urban climate action, designed educational tools for Natural Resources Canada and the BC Ministry of Municipal Affairs on community energy planning. He supported the BC Ministry of Environment on its program to generate community energy and emission inventories for all BC municipalities. While serving the David Suzuki Foundation, Alex oversaw projects on renewable power and conservation in Ontario, a Canadian deep GHG reduction agenda, and high integrity carbon offsets.

Published | Publié: 2019-12-09
Received | Reçu: 2019-12-09 00:12 (EST)



Hill Times

Federal transit spending could sustain high cost, high carbon cities

To meet our climate targets, it's essential for the incoming government to link permanent transit infrastructure funding to a commitment for municipalities to plan smart, compact communities.

Alex Boston

In the wake of months of climate action grandstanding from all sides of the stadium, Canadians are suffering an election hangover. Now that cabinet has been sworn in, it is time to sober up and reflect on meaningful climate action.

With the exception of the Conservatives, all parties made it to step one of the 12-step carbon counselling program: fully acknowledging the problem. To avoid the catastrophic impacts of a world that warms beyond 1.5 degree Celsius, greenhouse gas emissions (GHGs) must be net zero by 2050, according to the Intergovernmental Panel on Climate Change (IPCC).

The effectiveness of a climate agenda should not, however, be measured by how bold the high-level promises nor how freely the taps flow from the federal treasury. It should be measured by the defensibility of policies to cut carbon at the ground level.

Commendably, all parties cited transit investment as a central climate strategy. We should celebrate and formalize a consensus for permanent, stable transit funding to provide cities the predictability needed to coherently plan land use and transportation infrastructure over the long-term.

This is where the sober thinking ends. While all parties like to talk about evidence-based analysis, no party acknowledged that the biggest expenditure in the pan-Canadian framework-public transit-will have a modest impact on cutting GHGs.

The majority of today's highest-cost projects are pushing rails into forest and farmland, serving low-density, distributed developments that increase carbon emissions, congestion, and commute times. The further homes are from job centres, even if located on rapid transit or commuter rail, the more families drive. Driving is the biggest GHG source in Canadian households by far.

Since 1990, road-based transportation has grown faster than any other emission sector, even faster than oil and gas development. Transportation, along with oil and gas comprise half of Canada's GHGs. Car ownership has grown at more than twice the rate of the population over this period.

A major driver of the explosive growth in cars and carbon is the never-ending rings of distributed growth, successively added around cities. Urbanization is Canada's biggest driver of agricultural land loss and the second biggest driver of permanent forest loss, after oil and gas development. This permanently compromises climate action by reducing our capacity to sequester carbon out of the atmosphere and by increasing our vulnerability to flooding from intense rain episodes.

The Greens were the only party robustly considering land use as a central lever for cutting GHGs. They promised to increase transit contributions for municipalities that adopt policies to encourage smart growth and prevent sprawl. This is an excellent start, but inadequate given the chasm between smart growth policy (broadly accepted) and smart growth practice (rarely implemented).

Along with leveraging provincial and local investment, explicit performance standards are needed to link transit spending to specific reductions in carbon, congestion and commute time. As of 2010, California requires local governments in urban regions to develop land use and transportation infrastructure plans that meet ascribed personal transportation GHG reduction targets. Only after the state approves analysis is the infrastructure tap opened, and federal and state money flows to local governments. Urban regions have generally exceeded state targets and generated the best regional growth plans in California's history.

The only party, interestingly, that advocated for federal performance standards was the Conservatives, promising financing for any projects that cut commute times. Projected reductions in commute times should be rigorously evaluated to quantify a

project's full impacts. This would curtail most road expansion.

In 2009, British Columbia taxpayers sunk \$600-million into twinning the Sea to Sky Highway, cutting commute times from Squamish to Greater Vancouver and driving a real estate boom in Squamish. Highway traffic has since risen 25 per cent and the surge is a major contributor to big, new bottlenecks. Similar scenarios have played out in every major Canadian city where average commute times continue to rise. In 1955, eminent urban planner Lewis Mumford said, "Building more roads to prevent congestion is like a fat man loosening his belt to prevent obesity." This remains true. It also applies to transit projects that fail to consider land use.

To stay on the climate recovery wagon, governments can benefit from embracing the entire story of last year's watershed IPCC 1.5°C report, not just the headlines. The report concluded that "effective urban planning can reduce GHG emissions from urban transport between 20 per cent and 50 per cent." To meet our climate targets, it's essential for the incoming government to link permanent transit infrastructure funding to a commitment for municipalities to plan smart, compact communities.

Alex Boston is executive director of Renewable Cities and a fellow at the Morris J. Wosk For Dialogue Centre at Simon Fraser University in British Columbia.

The Hill Times

Url: <https://www.hilltimes.com/2019/12/09/federal-transit-spending-could-sustain-high-cost-high-carbon-cities/226927>



Opinion



Prime Minister Justin Trudeau tours the New Flyer manufacturing plant in Winnipeg in 2016. Alex Boston writes that if the Trudeau government's investments in expensive light rail infrastructure were conditional on clear intensification requirements, socio-economic costs would be minimized, and benefits maximized. Photograph courtesy of the Prime Minister's Office

Team Canada needs an own-the-podium urban infrastructure program

One of Canada's biggest and most stubborn emissions sources is personal transportation. Appropriately, one of the biggest infrastructure envelopes is public transit.



Alex Boston

Opinion

The federal Investing in Canada Plan has noble aims to build "cities of the 21st century."

It is unclear, however, whether program design, even with a thoughtfully motivated climate lens, is sufficient to align investments with its three goals: long term economic growth, GHG management, and inclusive community development.

One of Canada's biggest and most stubborn GHG sources is personal transportation. Appropriately, one of the biggest infrastructure envelopes is public transit.

Just last week the federal government inked a deal with B.C. on the biggest transit infrastructure investment in the province's history. Fortunately, the B.C. government, every municipality in Metro Vancouver, TransLink—the transit authority—and the federal government share similarly ambitious GHG reduction targets.

Personal transportation GHGs under the \$7.5 billion regional transit plan, however, are projected to continue rising out to the Paris Agreement's 2030 horizon, barely departing from business as usual, according to TransLink's own diligent analysis.

Metro Vancouver's large light rail transit investment is similar to transit agendas rolling out across Canada's biggest urban regions: Edmonton, Calgary, Toronto, Hamilton, Montreal and Ottawa.

These gold-plated transit infrastructure plans are built on land use plans that aren't making it to the podium. For geographical, legislative and political reasons, Metro Vancouver has the most sustainable land use regime of any large urban region in Canada, and we still must do better. Barring any dramatic recent conversion on the road to Paris, there is no indication any of Canada's major urban region are making the land use course corrections necessary to bend transportation GHG trajectories towards the Paris targets.

Growth is not being sufficiently re-allocated away from new, outer ring neighbourhoods and into rapid transit corridors. Driving distances will not be sufficiently curbed and transit mode shifts will not be sufficiently great to achieve the magnitude of GHG

reductions necessary for a medal performance by Team Canada in 2030.

High cost, high speed light rail is opening up new suburbs while existing single family neighbourhoods are hollowing out. Never in Canada's municipal history have single family neighbourhoods been so lightly populated. Over half of single-family homes are now occupied by just one or two people. Most are solo seniors and empty nesters. This share is steadily rising. Many want to downsize but are not attracted to or simply do not have opportunities.

There are immense, untapped opportunities in every Canadian city to revitalize existing single family neighbourhoods and provide a more diverse mix of housing that meets today's demographic needs. Better transit in existing urban and inner suburban neighbourhoods can intensify corridors and nodes. Gentle intensification strategies such as secondary suites and laneway homes can provide extensive affordable housing options.

If federal investments in expensive light rail infrastructure were conditional on clear intensification requirements, socio-economic costs would be minimized, and benefits maximized.

Urban expansion extends water, sewage, stormwater and road infrastructure across distant suburbs. This is a major driver of Canada's unsustainable civic infrastructure deficit. Intensification can generate the revenue per household necessary to sustain these costs.

Intensifying growth can stem the steady loss of forest carbon

and agricultural land consistently reported by NRCan and Stats Can. These natural assets are vital for our resilience in a climate changing world.

According to the Global Commission on the Economy and Climate, focussed growth is among the top strategies for liberating the scarce capital required to achieve the GHG reductions necessary to sustain a healthy global economy. Headed by former World Bank Chief Economist Nicholas Stern and former Mexican President Felipe Calderón, the commission shows how focused growth and transit investment can reduce infrastructure costs 30 per cent and household transportation costs 50 per cent, while dramatically cutting GHGs in the U.S.

California—home to the continent's biggest congestion and suburbanization challenges—has some of the most innovative solutions. It is the only North American jurisdiction successfully making deep personal transportation GHG reductions.

California understands that each leg of the sustainable transportation table, and partnerships among all orders of government around the table, is essential. Decarbonizing fuels (leg one) and improving vehicle efficiency (leg two) are senior government responsibilities. Shifting modes to transit and active travel (leg three) and reducing driving distances (leg four) are local government responsibilities. Senior governments must support local implementation with long-term, predictable infrastructure financing.

Under the Sustainable Communities Act, California requires

all municipalities under a regional government to develop shared, integrated land use and transportation plans. Each plan is subjected to rigorous options analysis that produces a preferred infrastructure and land use path. Plans must demonstrate GHG reduction targets will be met. California EPA approves these plans. State and federal money then flows to local infrastructure priorities.

A recent EPA review concluded the Act "has encouraged development of a new generation of regional transportation plans that include more creative thinking about smart growth and increasing mobility choices to reduce greenhouse gas emissions, as well as generate numerous public health, economic, mobility, housing, and land conservation benefits associated with a lower carbon future."

The Canadian federation is different from California but there are portable lessons. Each order of government has unique leadership responsibilities. Checks and balances must be developed to ensure commitments are met. Large infrastructure projects require diligent options analysis tied to GHG reduction targets. And lastly, Canada's lofty goals about building more equitable, prosperous, low carbon cities are laudable and achievable. To be successful Team Canada needs a more robust own the podium program.

Alex Boston is Executive Director of Renewable Cities and a Fellow with Simon Fraser University's Morris J Wosk Centre for Dialogue.

The Hill Times

inconvenient truth, convenient opportunity: infrastructure, urban growth + prosperity

Briefing for House of Commons Standing Committee

On Transport, Infrastructure and Communities

April 25, 2018



Alex Boston
Executive Director



MORRIS J. WOSK
CENTRE FOR DIALOGUE

ITINERARY



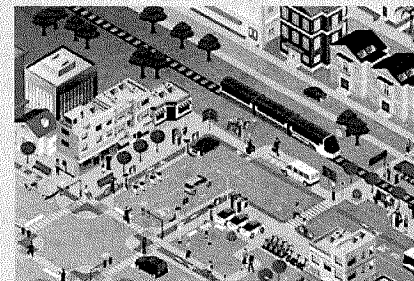
1. Objectives + Outcomes Mind the Gap



2. Investing In Canada Plan Barriers to Success



3. Investing In Canada Plan Solutions





Stop 1:

Objective +
Outcomes

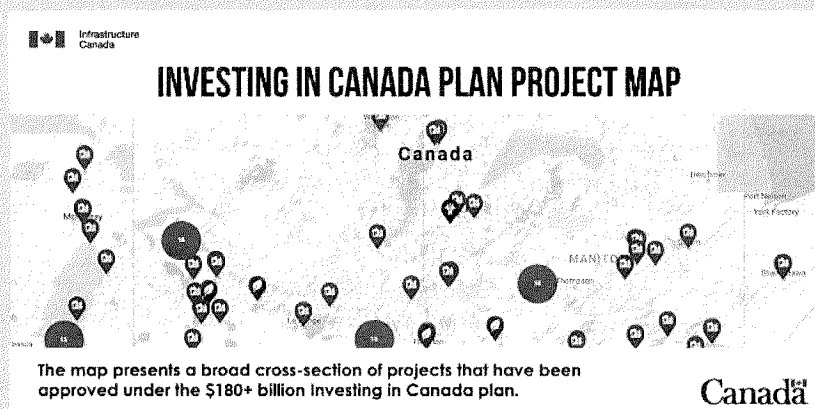
Mind the
Gap



LAUDABLE + ACHIEVABLE OBJECTIVES

Investing In Canada Plan

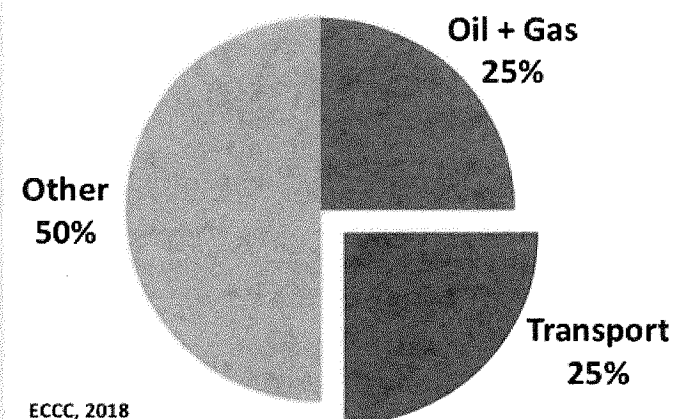
- Prosperity
 - Long-term economic growth
- Climate
 - Low carbon, green economy
- Inclusivity
 - Inclusive communities



Paris Agreement

- -33% GHGs by 2030 fr 2005
- Transport – key sector
 - size + complexity

CANADA GHGS, 2016



Leading Jurisdictions

4 Transformative Pillars

**1. Improve
Vehicle
Efficiency**

**2. Increase
Renewable
Fuels**

**3. Reduce
Commuting
Distances**

**4. Shift
Modes**

Pillars 3+4 Conditions:

A) Strong transit infrastructure investment criteria

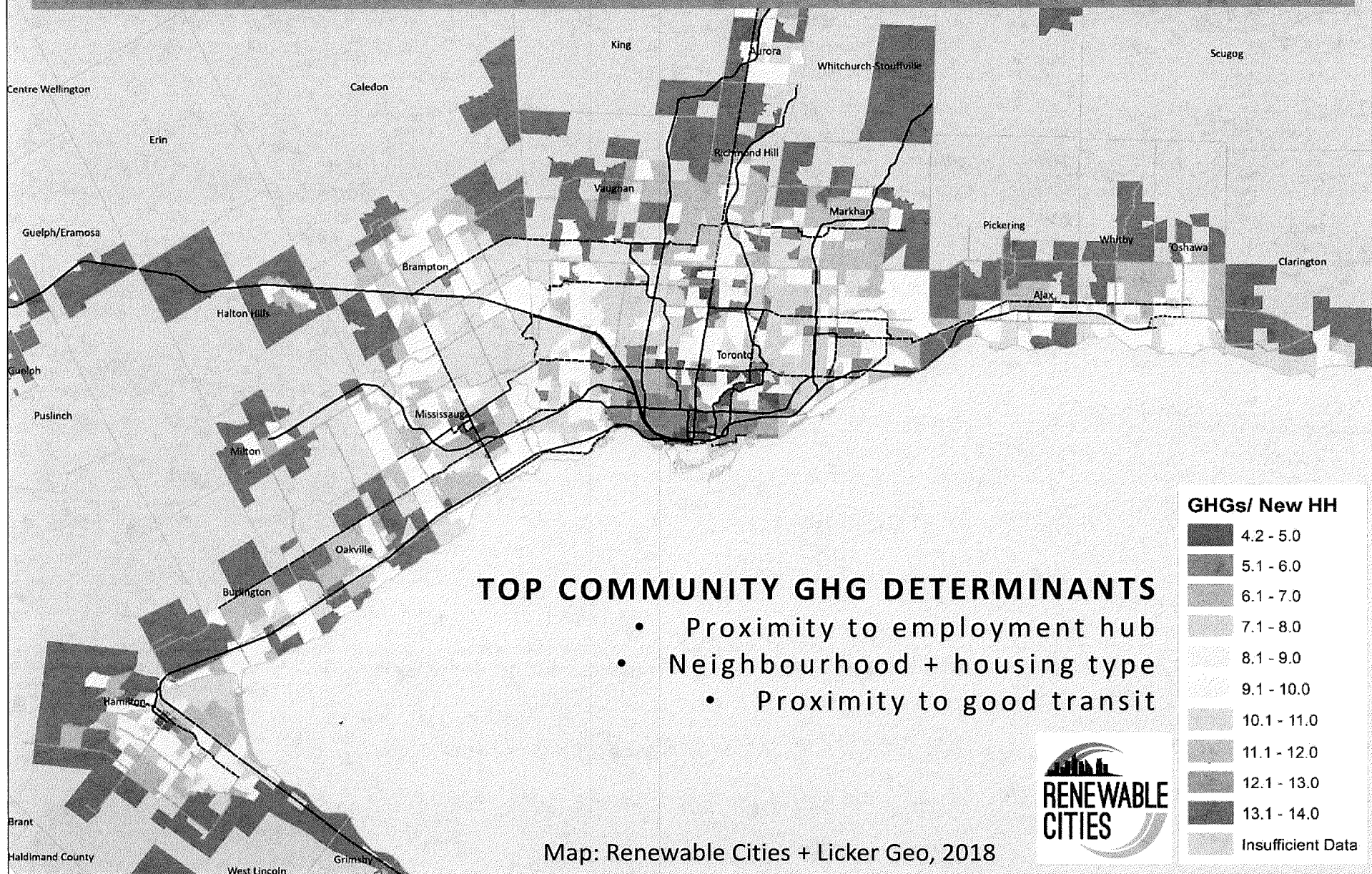
B) Strong land use planning adjustments

**Significant adjustments with significant rewards for
prosperity, climate, inclusivity.**

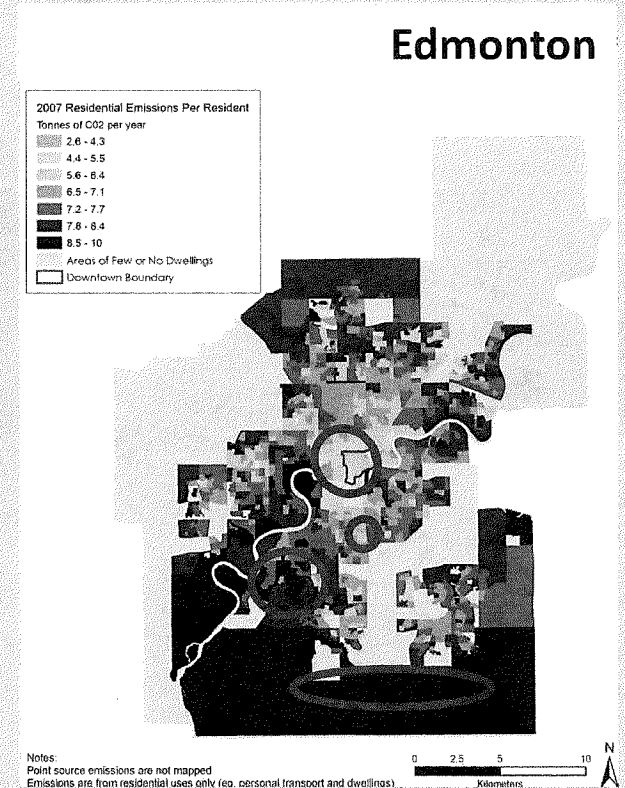
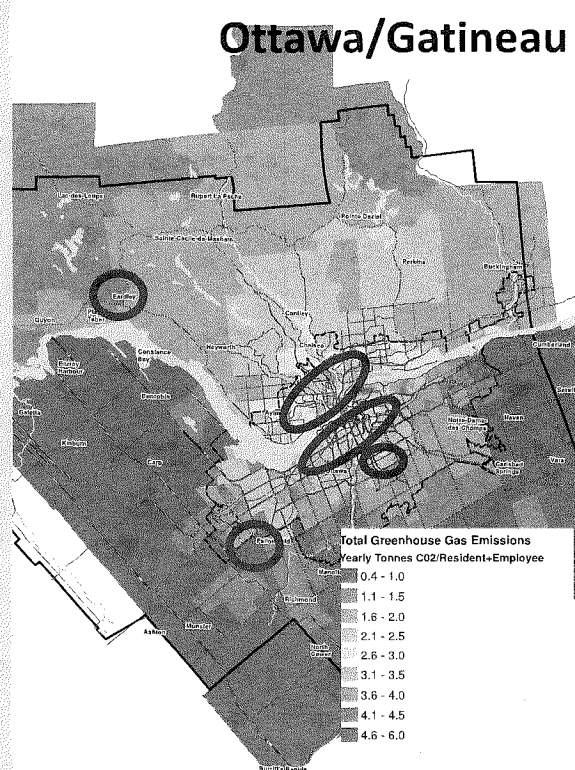
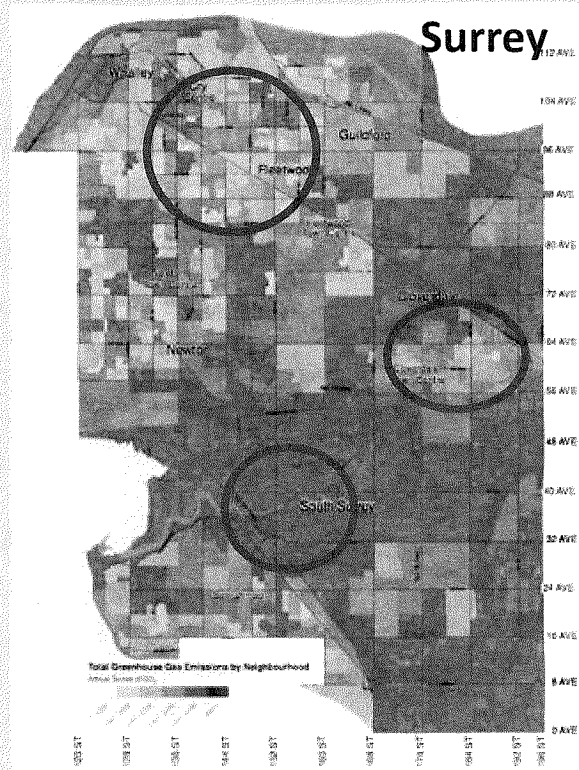
**PERSONAL
TRANSPORT
LARGEST
GHG
SHARE**

**>30%
GROWTH
SINCE 2005**

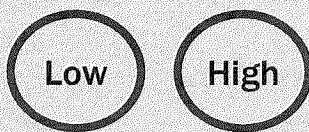
GHGS PER NEW HOUSEHOLD GREATER GOLDEN HORSESHOE



ALL COMMUNITIES HAVE HIGH + LOW GHG NEIGHBOURHOODS

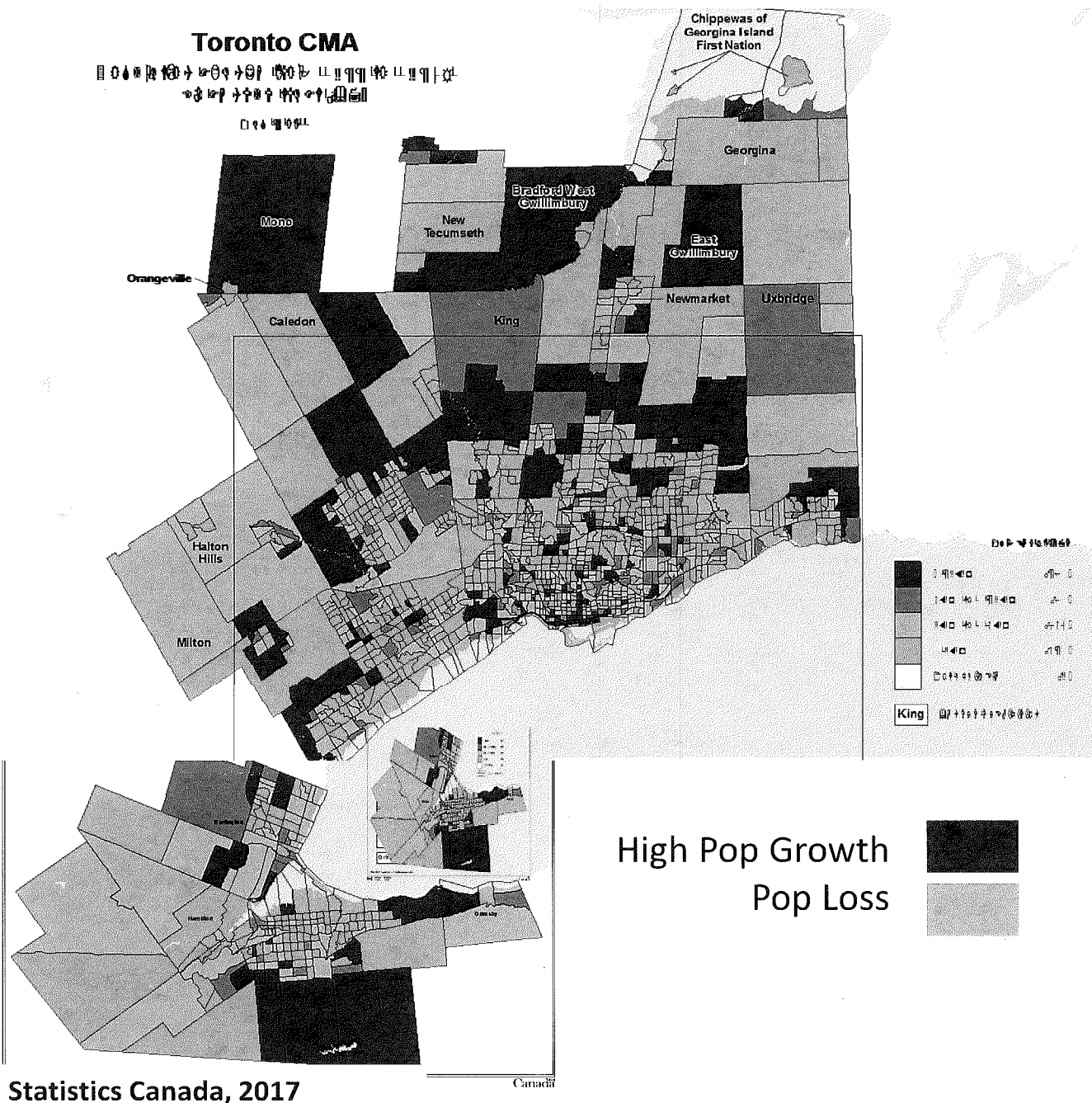


Neighbourhoods GHGs



Disproportionate share of growth is going to high GHG neighbourhoods

(carbon + energy projects led by Alex Boston, maps by Aaron Licker, Golder)



CANADA'S URBAN GROWTH PATTERN

High-Density
Hubs
(low carbon)

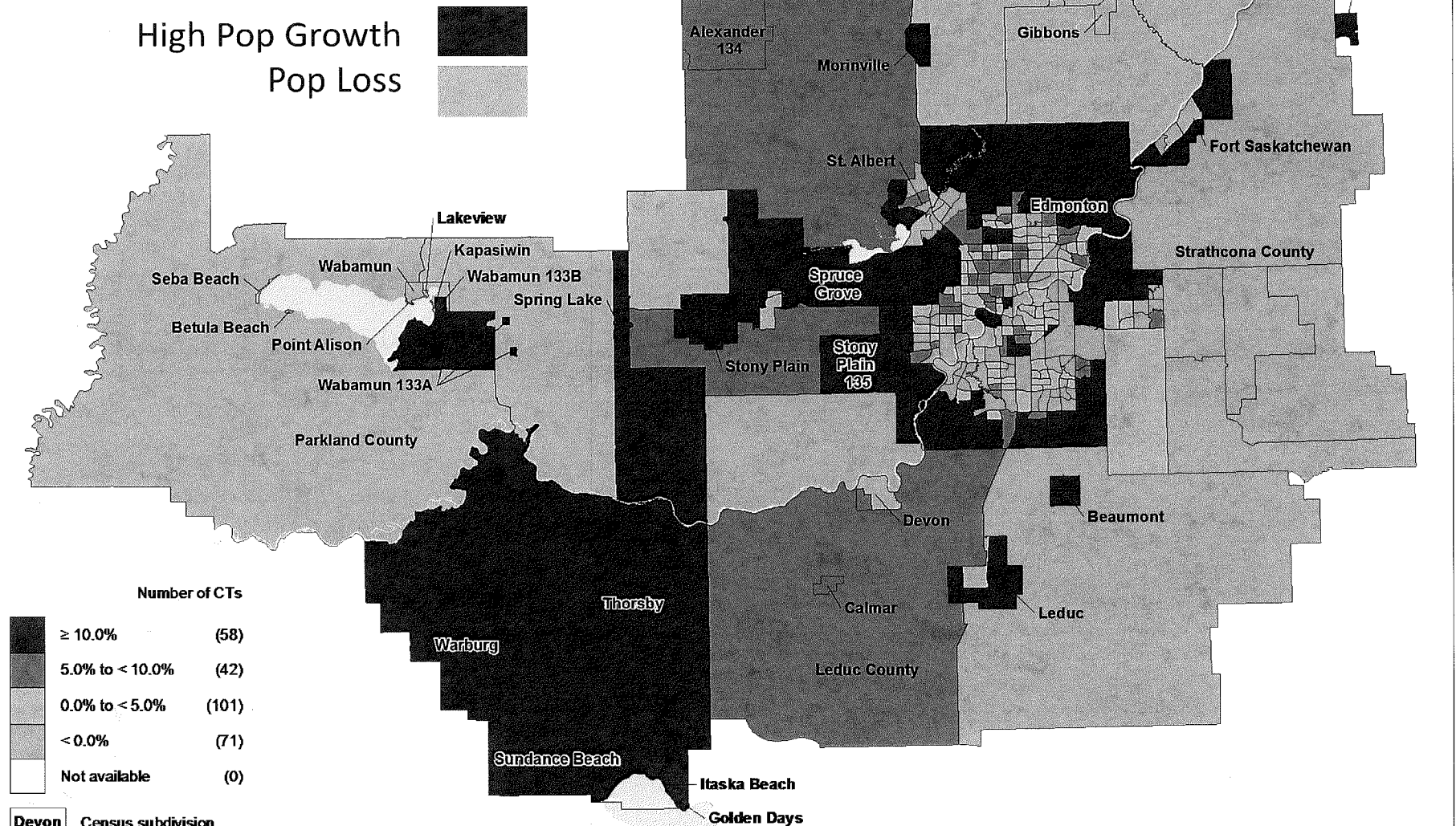
Hollowed Out
Single-Family
Hoods
(high carbon)

New Low-
Density Rings
(high carbon)

Edmonton CMA

Population change from 2011 to 2016,
by census tract (CT)

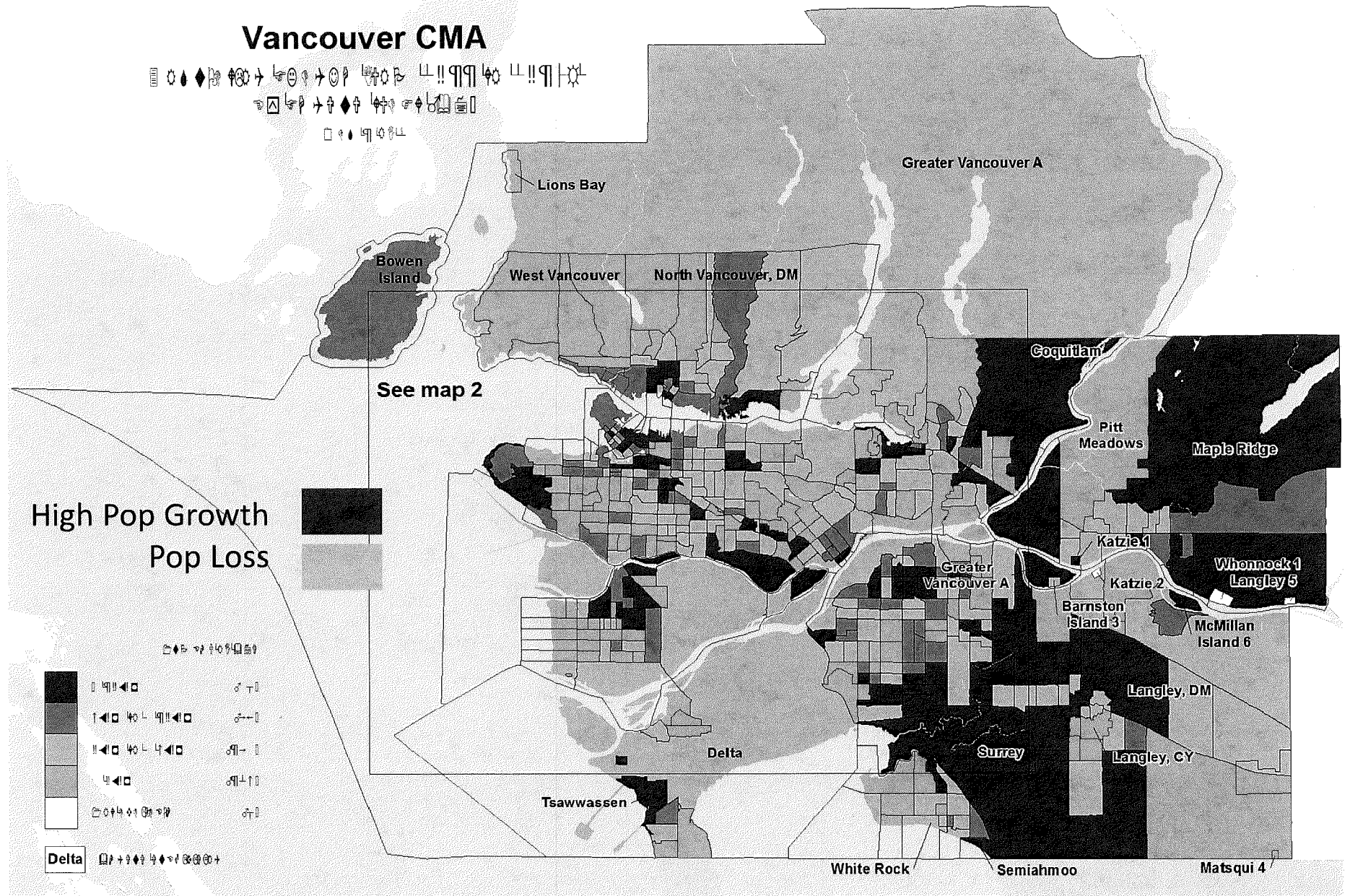
High Pop Growth
Pop Loss



Statistics Canada, 2017

Vancouver CMA

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100



Statistics Canada, 2017

HIGH CARBON, HIGH COST URBAN CANADA



Low-Density, Outer Ring vs Smart Growth Households

- Two to three-fold higher GHGs (Boston Consulting meta analysis)
- Two-fold higher civic infrastructure burden (BC Ministry of Community Development, 2014)
Provincial + local government debt "is unsustainable" (Parliamentary Budget Officer, 2016)
- Two-fold higher transport costs, driving distances, travel times (Metro Van, 2015)
 - Majority are overweight (Coastal and Fraser Health Authorities, 2015)
 - #1 driver of farm land loss – 3% per decade (Statistics Canada, 2017)
 - ~75% of current of pop, ~85% of current growth! (David Gordon, 2011)



Stop 2:

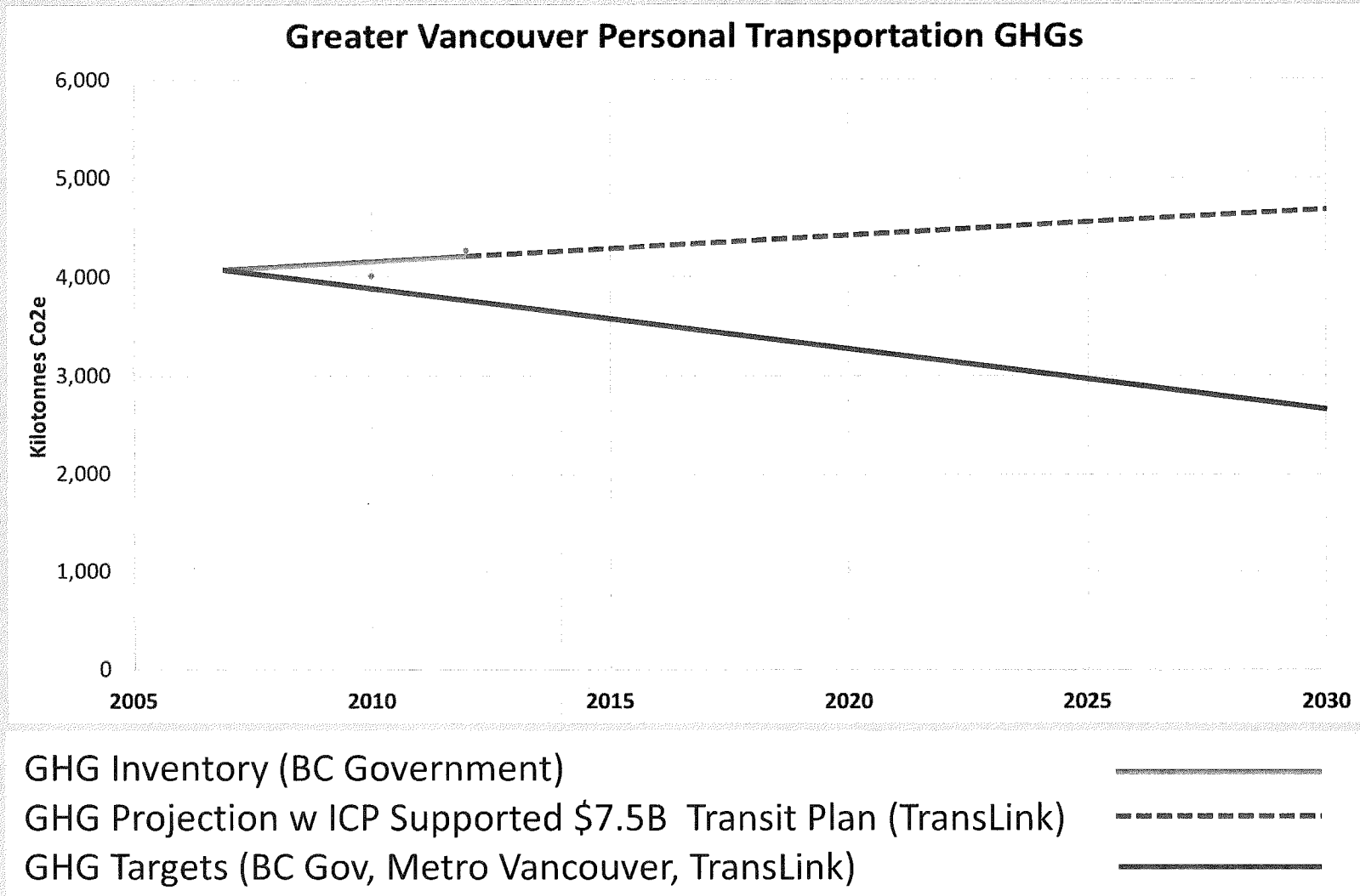
INVESTING
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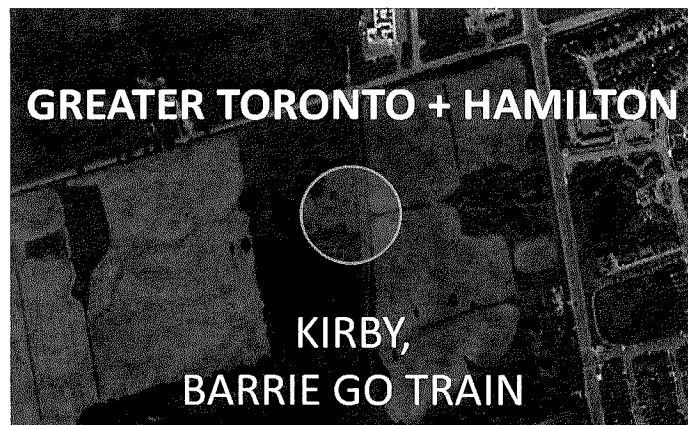
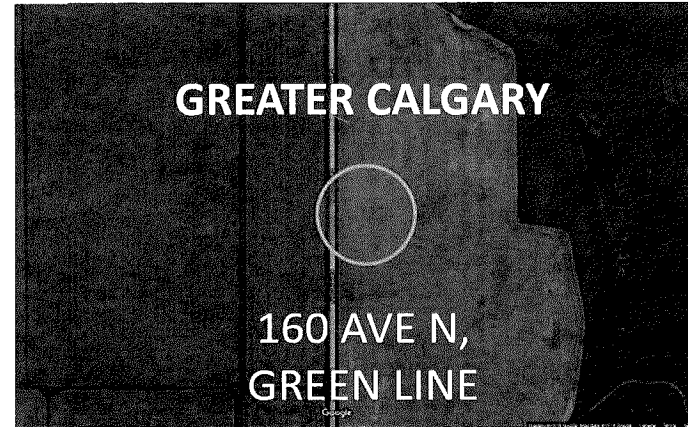
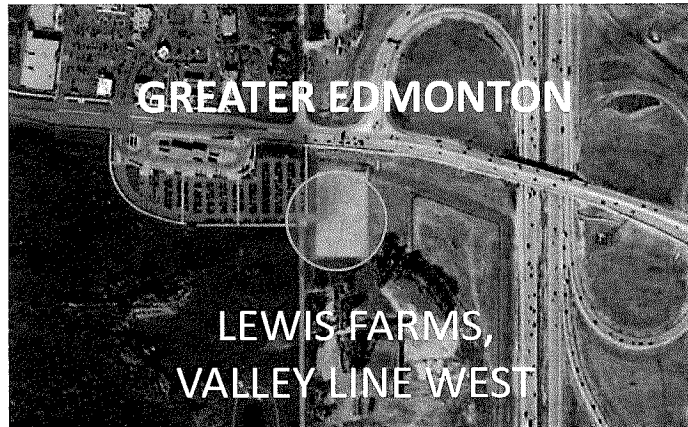
BARRIERS
TO
SUCCESS



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BIGGEST TRANSIT INVESTMENT IN HISTORY WON'T CUT PERSONAL TRANSPORT GHGS



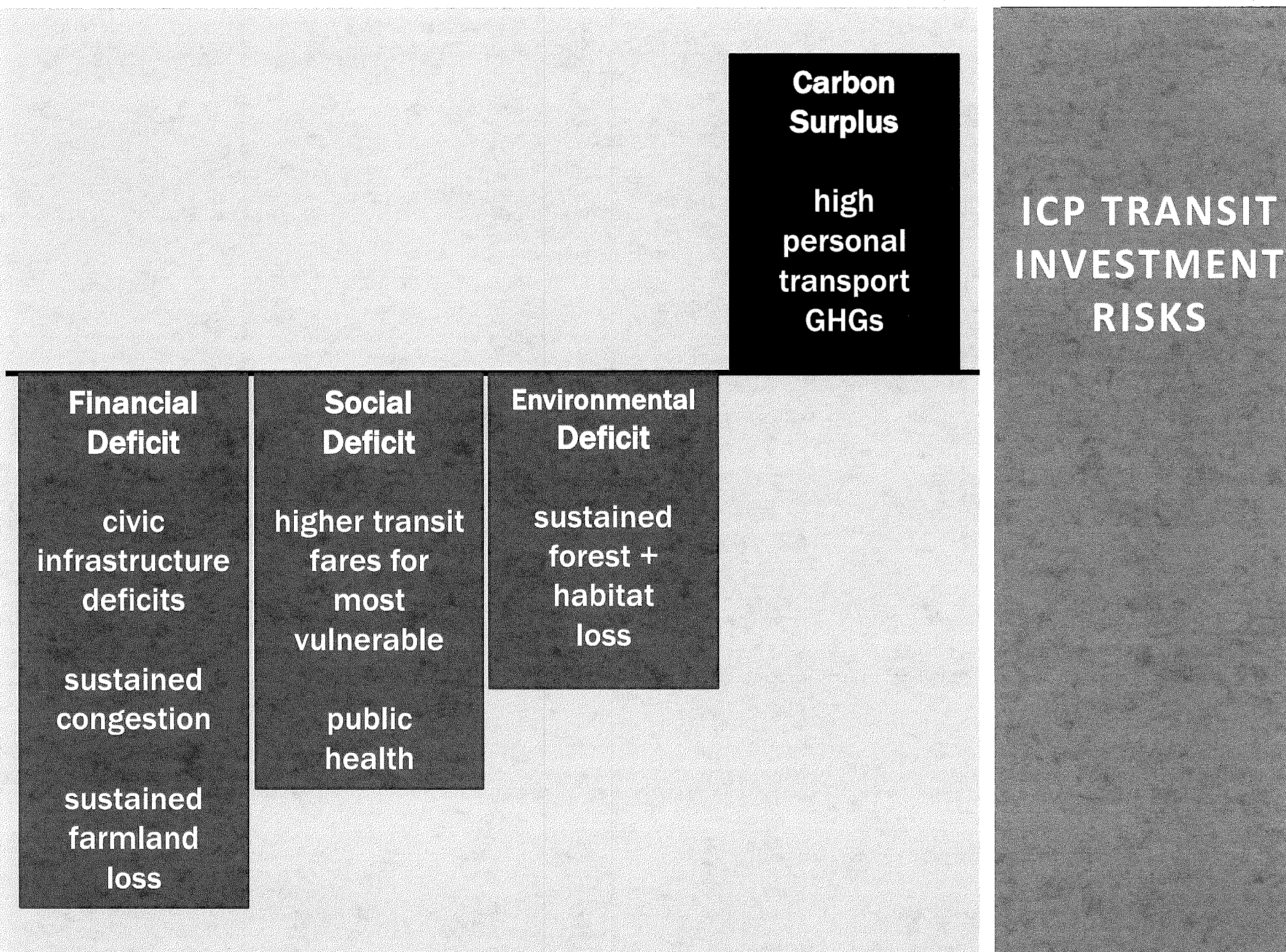


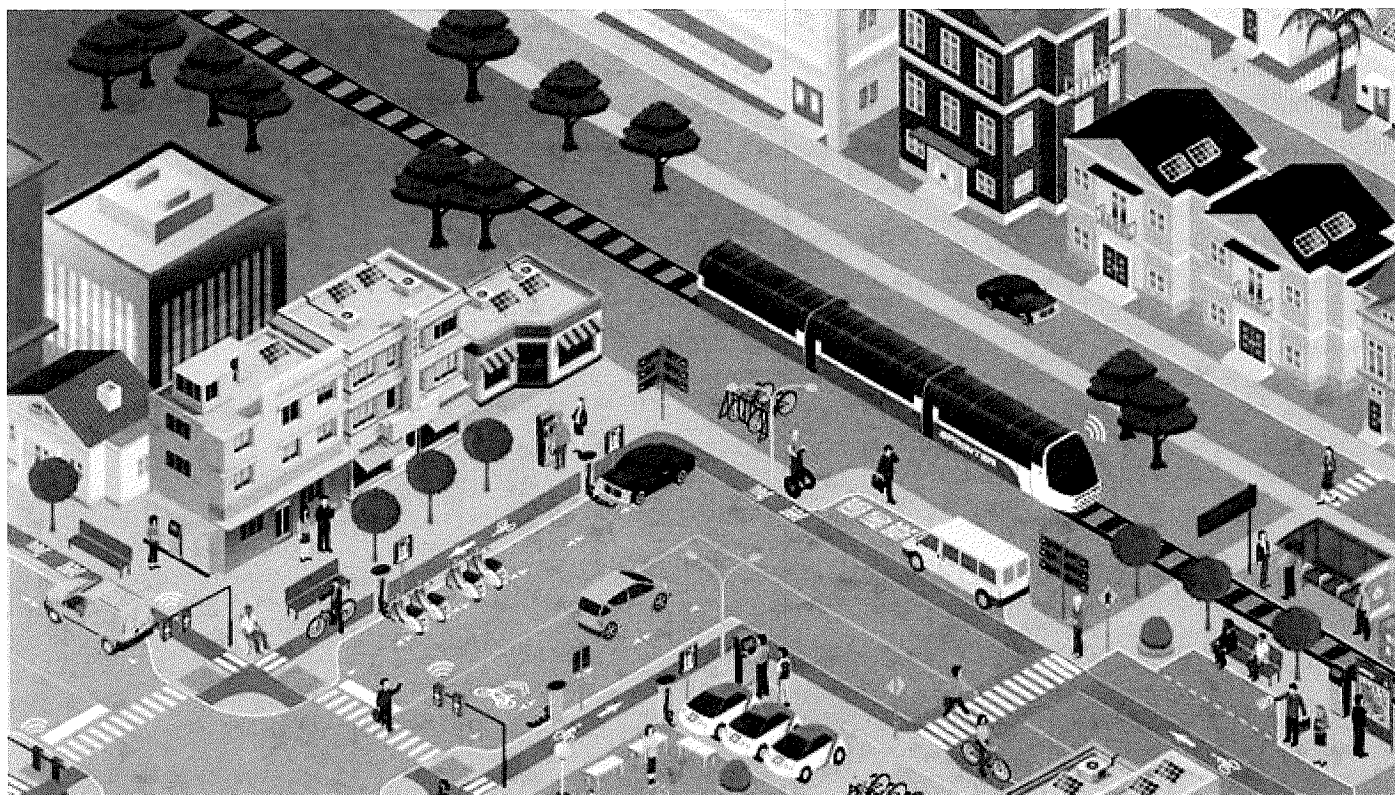
**NEW
FEDERAL
RAIL
TRANSIT
LINES +
STATIONS**

**NOT
ENROUTE
TO PARIS!**

expensive infrastructure with
potential to focus growth and
reduce GHGs is expanding high
carbon, high cost development,
displacing forest + farmland

many existing transit lines are not
meeting density benchmarks





Stop 3:

INVESTING
IN CANADA
PLAN

SOLUTIONS



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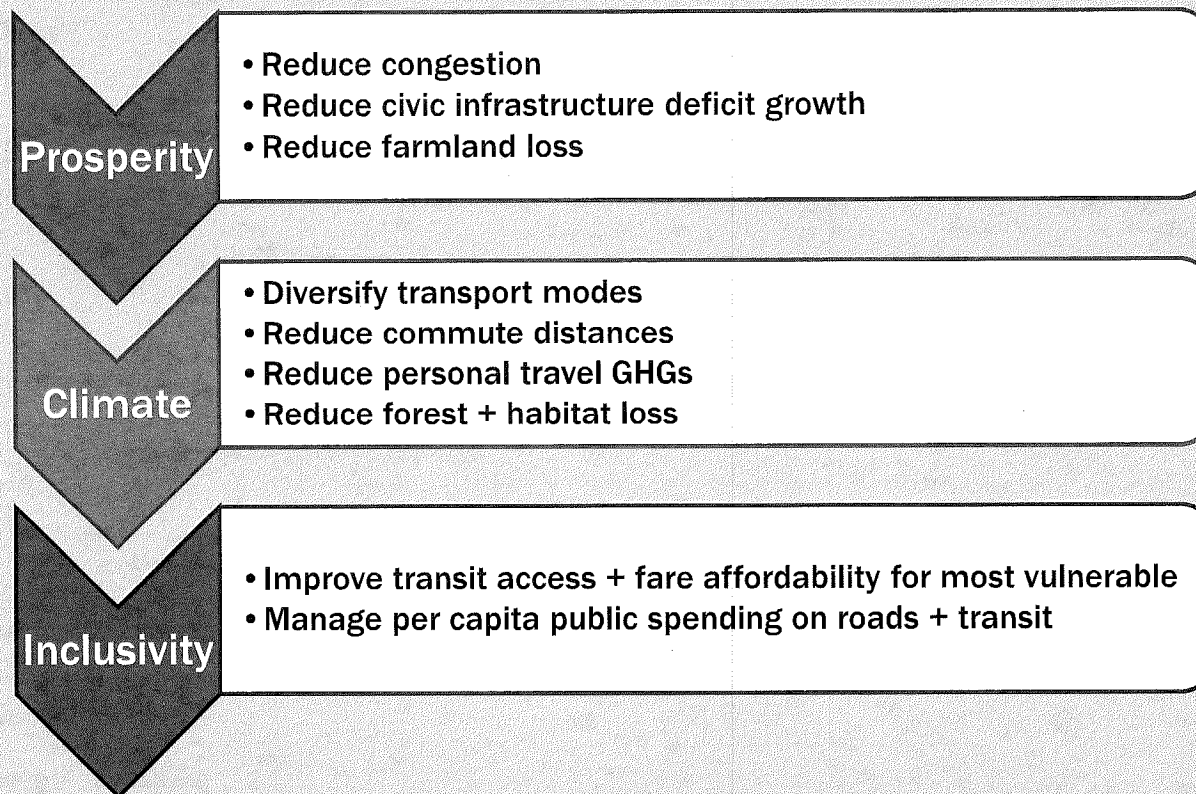
Design Phase Projects

- Require accepted resident/job density benchmarks

New Projects

- Require performance improvement on key indicators
- Require infrastructure + land use options analysis on large projects

Performance Indicators for ICP Goals



**ICP OBJECTIVES
ARE LAUDABLE
+ ACHIEVABLE!**

RECOMMENDATIONS

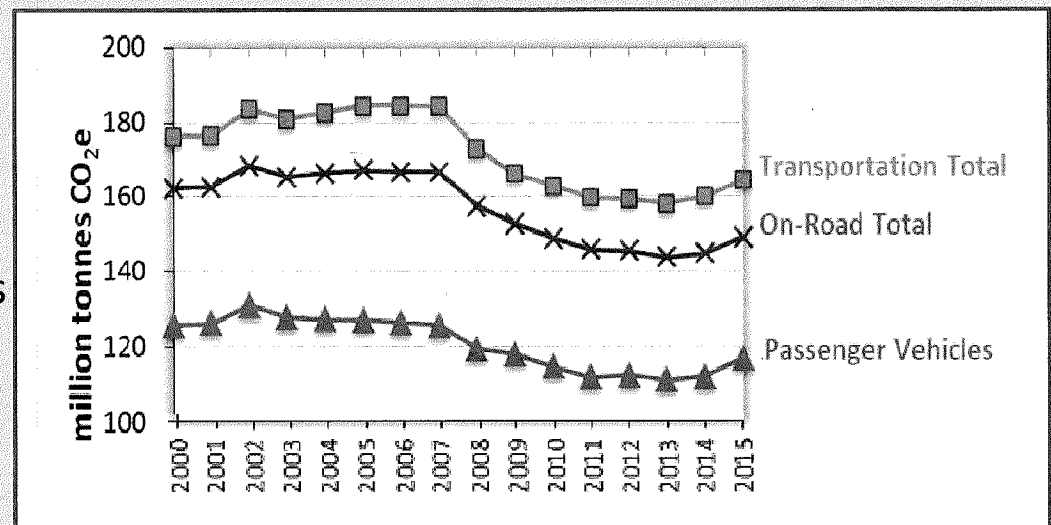
**SHOVEL READY+
SHOVEL WORTHY
PROJECT
CRITERIA**

PRECEDENT: CALIFORNIA SUSTAINABLE COMMUNITIES ACT (SB 375)

- Required regional land use + transportation plans

- Defensible GHG + multi-criteria analysis
- Required personal transport GHG targets
- Housing for diverse incomes
- Agricultural land protection

- Long-term federal + state infrastructure funding

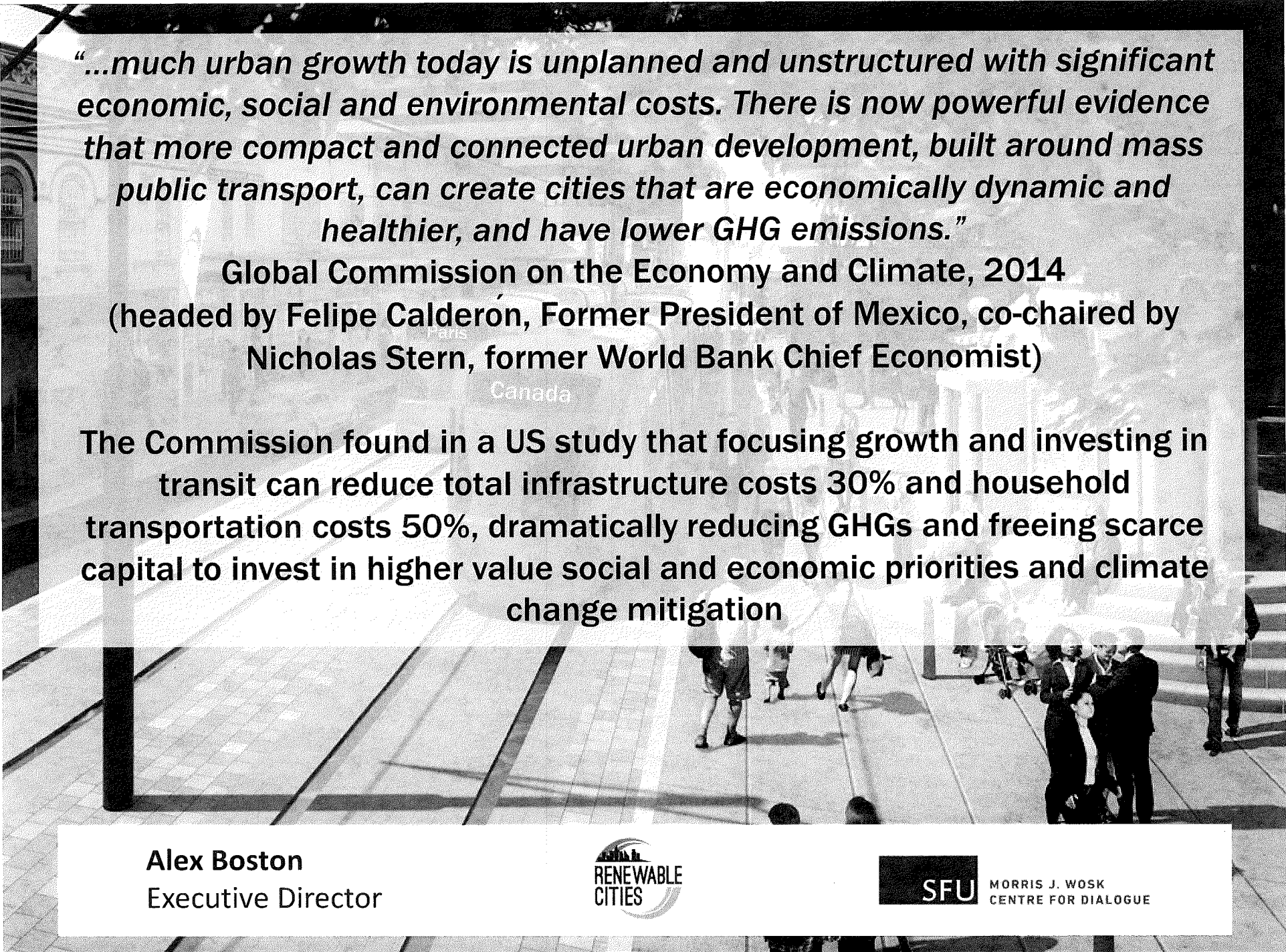


California EPA, 2017

California Sustainable Communities Act...

“...has encouraged development of a new generation of regional transportation plans that include more creative thinking about smart growth and increasing mobility choices to reduce greenhouse gas emissions, as well as generate numerous public health, economic, mobility, housing, and land conservation benefits associated with a lower carbon future.”

California EPA, Air Resources Board, 2017



“...much urban growth today is unplanned and unstructured with significant economic, social and environmental costs. There is now powerful evidence that more compact and connected urban development, built around mass public transport, can create cities that are economically dynamic and healthier, and have lower GHG emissions.”

**Global Commission on the Economy and Climate, 2014
(headed by Felipe Calderón, Former President of Mexico, co-chaired by
Nicholas Stern, former World Bank Chief Economist)**

The Commission found in a US study that focusing growth and investing in transit can reduce total infrastructure costs 30% and household transportation costs 50%, dramatically reducing GHGs and freeing scarce capital to invest in higher value social and economic priorities and climate change mitigation

Alex Boston
Executive Director



MORRIS J. WOSK
CENTRE FOR DIALOGUE

Renewable Cities is an international program of the Simon Fraser University Morris J. Wosk Centre for Dialogue
www.renewablecities.ca www.sfu.ca/dialogue

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B.C. Budget 2020: Transportation and land-use plan coming for Fraser Valley

The budget also includes money to continue work on the George Massey Tunnel replacement project, including safety upgrades and planning.

JENNIFER SALTMAN ([HTTPS://VANCOUVERSUN.COM/AUTHOR/JENSALTMAN](https://vancouversun.com/author/jensaltman)) Updated: February 18, 2020



The B.C. government will lead a transportation and development study in the Fraser Valley, where local government leaders have called for more investment to improve how people and goods get around in the region.

The goal, according to information released on Tuesday as part of the province's 2020 budget (<https://vancouversun.com/news/local-news/b-c-budget-2020-b-c-finance-presents-stay-the-course-budget>), is to use findings and recommendations from the study to come up with a strategy for the Fraser Valley that covers transportation, development and housing, while taking national and provincial trade corridors into account.

There were few details available, but the project appears to be part of a larger push by the province to make sure its investments are aligned and integrated with regional development plans, reduce congestion and promote livable communities.

"It's critical that we ensure that goods and commuters are able to move, and commuters are able to move," said Finance Minister Carole James.

The study will be done in partnership with transit authorities TransLink and B.C. Transit, and there will be engagement with local governments, Indigenous communities, the public, and others.

Chilliwack Coun. Jason Lum, who chairs the Fraser Valley Regional District, said he welcomes any opportunity to talk to the province about improving transportation in the region — particularly if there is a chance funding could be involved.

However, he said he believes the district has a lot to offer because they run the regional transit system and have authority over land use.

"I would respectfully consider us more than just a stakeholder to be engaged at some point. We should be driving this process, and I think we would be very valuable to be at the table," Lum said.

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As protesters besiege legislature, B.C. throne speech offers few new promises
(<https://vancouversun.com/news/politics/protesters-block-start-of-spring-session-at-the-b-c-legislature>)

B.C. legislature returns with throne speech, budget coming next week
(<https://vancouversun.com/news/local-news/b-c-legislature-returns-with-throne-speech-budget-coming-next-week>)

The budget lays out the province's transportation capital spending for the next five years, a change from previous budgets that have covered only three years. During that time, the province expects to spend \$9.2 billion on transportation infrastructure.

Major projects include the Pattullo Bridge replacement (<https://vancouversun.com/news/local-news/pattullo-bridge-contract-awarded-to-fraser-crossing-partners>) (\$1.2 billion over five years), Millennium Line SkyTrain extension along Broadway to Arbutus (<https://vancouversun.com/news/local-news/province-hosts-open-house-on-broadway-subway-project>) in Vancouver (\$1.5 billion), four-laning Highway 1 to the Alberta border (\$1.2 billion), adding high-occupancy vehicle lanes to Highway 1 between 216th and 264th Streets in Langley, and upgrades to Highway 91, Highway 17, and Deltaport.

The budget also contains funding for work on the George Massey Tunnel replacement (<https://vancouversun.com/news/politics/horgan-insists-hes-still-open-to-ideas-for-replacing->

[massey-tunnel](#)) project, with immediate safety improvements to the existing tunnel, planning and design for interim congestion relief and transit priority projects, and planning, engineering and Indigenous consultation on the replacement.

Upgrades to the existing tunnel include lighting, drainage, paving, replacing signs and safety systems.

Specific dollar amounts for the safety upgrades and planning are not included in the budget, but rather included under the header "transportation and trade network reliability." The plan is to spend \$1.9 billion over five years in that area, including \$314 million in 2020/2021.

Money has not yet been allocated for construction of a replacement for the tunnel because the province has not yet decided what form that will take. Metro Vancouver mayors have expressed their interest in seeing the river crossing replaced with an [eight-lane immersed-tube tunnel](https://vancouversun.com/news/local-news/task-force-recommends-new-eight-lane-tube-to-replace-massey-tunnel) (<https://vancouversun.com/news/local-news/task-force-recommends-new-eight-lane-tube-to-replace-massey-tunnel>).

The province is still conducting public consultation, and James said a business case, which will reveal the scope, budget, delivery and schedule, is expected to be completed later this year.

The government has invested another \$419 million in [CleanBC](#), (<https://vancouversun.com/news/politics/new-bill-mandates-annual-reports-on-b-c-s-climate-pollution-reduction>) its climate-action strategy, which has \$35 million allocated to clean transportation, including charging stations, electrification of public transit and inland ferries, and continuing rebates toward the purchase of electric vehicles and incentives for home and workplace charging stations.

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Tom Hobbs 13 HRS AGO

An immersed tunnel? Could be an apt choice of words. I understand from global warming articles this area could be under a couple of meters of sea water.

0 0



David DENNISON 15 HRS AGO

The tunnel needs to be replaced and it's great that the Government is getting the ball rolling again.

I just hope that they get approval from the local indigenous communities elected and hereditary chiefs and all of the environmental groups

The last thing we need is the project being shut down by the People for the Ethical Treatment of Ground Squirrels because the road will disturb a sensitive Ground Squirrel breeding habitat

1 0

ACTIVE CONVERSATIONS



Wet'suwet'en hereditary chiefs won't talk with Trudeau and Horgan until Mounties...

6

(https://vancouversun.com/news/local-news/wetsuweten-hereditary-chiefs-wont-talk-with-trudeau-and-horgan-until-mounties-leave?__vfz=medium%3Dconversations_top_pages)



Vaughn Palmer: James delivers budget surplus via tax hikes, trimming program...

5

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NEWS POLITICS TRANSPORTATION URBANIZED

BUDGET 2020: New integrated Fraser Valley commuter rail and housing study to move ahead



Kenneth Chan | Feb 18 2020, 2:21 pm



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Such a study will examine broader transportation and development initiatives in the easternmost end of the Lower Mainland, which will lead to an “inclusive multi-modal transportation and development strategy for the Fraser Valley.”

- See also:

- [*BUDGET 2020: New income tax for BC's top 1% richest residents*](#)
- [*BUDGET 2020: BC Government introduces tax on carbonated sugary beverages*](#)
- [*BUDGET 2020: New BC student grant program of up to \\$4,000 annually*](#)
- [*BC government planning commuter rail from Metro Vancouver to Fraser Valley*](#)
- [*\\$8-billion Metro Vancouver to Fraser Valley rail transit line needed, says Abbotsford mayor*](#)

This adds to the depth of planning to the promise of commuter rail between Metro Vancouver and the Fraser Valley, [announced in the throne speech earlier this month.](#)

This in response to the increasingly apparent eastward shift in the population growth patterns of the Lower Mainland, with emerging patterns zeroing in on areas where housing is more affordable. Municipal governments in the Fraser Valley, [especially the City of Abbotsford](#), have also been vocal about their desire for improved transportation links to Metro Vancouver.

The Fraser Valley study will be a partnership between the provincial government's ministries, and both TransLink and BC Transit. It will also involve extensive consultation with municipal governments, stakeholders, and the general public.

A similar study has also been launched for southern Vancouver Island, where there have been calls for a commuter rail service serving the capital region. This study will reach completion in Spring 2020.

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The provincial government's approach to examining transportation, housing, and economic development in the same lens is defined as a new process called the Integrated Transportation and Development Planning (ITDP).

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"This process will develop a collaborative vision for BC's transportation and affordable development needs that contribute to an efficient and accessible multi-modal transportation network that connects communities, regions, and global markets," continues the budget, with the provincial government's active transportation strategy and the coastal ferries study considered as well.

No new major funding for transportation infrastructure projects is identified in the budget, although it is noted that capital investments from transportation will total \$7.4 billion over the next three years.

There is also no capital funding for the new crossing to replace the existing George Massey Tunnel, but the budget reaffirms interim minor congestion relief and transit priority projects along the Highway 99 corridor near the tunnel, and the finalizing of the replacement business case in Fall 2020, when the provincial government will confirm the scope, budget, delivery, and schedule.

The provincial government is currently considering an eight-lane crossing as either a new immersed tunnel or long-span suspension bridge.

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No funding has been set aside for the SkyTrain extensions from Arbutus to UBC, and from Fleetwood to UBC, but both projects are still in their infancy and depend on TransLink's Mayors' Council finalizing business cases for consideration.

As previously budgeted, for 2019/20, the provincial government will spend \$135 million on the \$1.4-billion Pattullo Bridge replacement, with further installments of \$254 million in 2020/21, \$310 million in 2021/22, \$277 million in 2022/23, \$255 million in 2023/24, and \$97 million in 2024/25.

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million for 2021/22, \$470 million for 2022/23, \$294 million for 2023/24, and \$175 million for 2024/25.

Construction on both the Pattullo Bridge and Millennium Line Broadway Extension projects will begin later this year. The main construction contractor for the Pattullo Bridge project was announced earlier this month, while the contractor for the subway will be selected by the middle of 2020.

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- See also:
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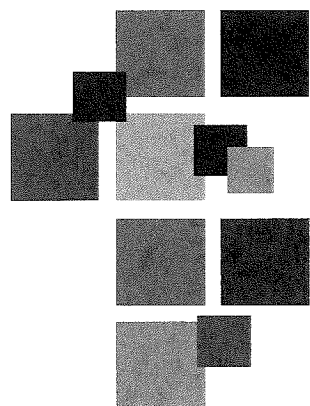
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Understanding SB 375:

Regional Planning for Transportation, Housing and the Environment

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 - Land Use and Environment

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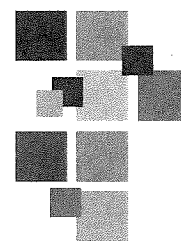
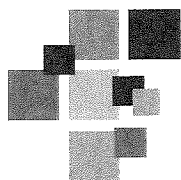


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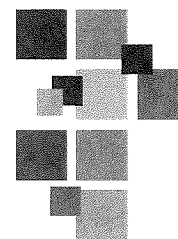
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INSTITUTE OFFERS SERIES OF GUIDES ON REGIONAL PLANNING

This guide is one in a series developed by the Institute for Local Government (ILG) to assist local officials, residents, and others to understand the basic provisions of local and regional planning efforts to reduce greenhouse gas emissions in California.

ILG has prepared companion guides for local officials outlining the public participation requirements and opportunities that apply to regional planning. They are available, along with other regional planning resources, on the ILG website at www.ca-ilg.org/RegionalPlanning.

To address in more detail legal issues specifically related to AB 32 and SB 375, the Institute has prepared two guides for local officials providing a legal analysis of AB 32 and SB 375, respectively. Both legal analyses are available at www.ca-ilg.org/AB32-SB375LegalAnalysis.



Introduction

California's population – estimated at 39 million in 2010 – is expected to grow to nearly 60 million people by the year 2050.¹ To help manage this growth and its associated challenges, cities and counties are participating more frequently and deeply in regional planning efforts. Local officials throughout California have developed a variety of collaborative processes to address the regional nature of many planning issues, such as improving air quality, meeting housing needs, and providing transportation networks.

Two recent laws, the Global Warming Solutions Act of 2006 (AB 32)² and the Sustainable Communities and Climate Protection Act of 2008 (SB 375)³, have important implications for the roles and responsibilities of local officials.

The purpose of this guide is to provide local officials with a concise introduction to regional planning for transportation, housing and the environment as revised by SB 375, including how regional planning relates to cities and counties in a region.

For local officials and others who are not familiar with the regional planning process, the guide offers an overview of the process and some of the issues central to regional planning for transportation and housing. For those with experience in regional planning as it has been conducted in the past, the guide describes how recent changes affect the processes for regional and local planning and environmental review.

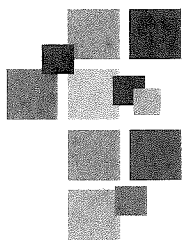
Overview of SB 375

Senate Bill 375 creates a formal process that builds on the experience of voluntary regional visioning initiatives in California, often referred to as "Regional Blueprints."⁴ Furthering the goals of AB 32, SB 375 relies on regional collaboration by local officials to address California's goals for reducing that portion of the emissions of greenhouse gases that stems from automobile travel. The law coordinates three important planning activities into a new integrated planning process:

- The regional transportation plan (RTP);
- The regional housing needs assessment (RHNA); and
- Updating the housing element of local general plans.

In addition, SB 375 modifies the process for environmental review of projects that are consistent with regional strategies to reduce greenhouse gas emissions.

Taken together, these changes provide important opportunities for local officials to engage with their colleagues and the public and proactively chart the pace and character of development in their region.



Regional Planning Agencies and Organizations

Federal and state laws assign responsibility for development of regional plans for transportation and housing to one of three different types of regional agencies in California: regional transportation planning agencies (RTPAs), metropolitan planning organizations (MPOs), and regional councils of governments (COGs). Metropolitan planning organizations and councils of governments are “joint powers agencies” established by voluntary agreements among the cities and counties in the region. RTPAs are identified by statute (see below). These agencies are governed by boards composed of or appointed by local elected officials, with the exception that certain RTPA’s boards may include appointed representatives of local transit operators.⁵

Regional Transportation Planning Agencies

The state’s Director of the Department of Transportation (Caltrans) designates the official regional transportation planning agency (RTPA) for each of California’s fifty-eight counties.⁶

- For some counties, the regional transportation planning agency is created by statute;⁷
- For counties within the jurisdiction of a metropolitan planning organization, that organization may serve as the regional transportation planning agency for a county;⁸
- For counties that are not within the jurisdiction of a metropolitan planning organization or a statutorily created regional transportation planning agency, a local transportation commission or county transportation commission may serve as the regional transportation planning agency.⁹

More information about the designation of regional transportation planning agencies is available on the Caltrans website at: www.dot.ca.gov/hq/tpp/offices/orip/list/agencies.html.

Metropolitan Planning Organizations

For urbanized areas with more than 50,000 residents, federal law¹⁰ requires the state to designate a regional metropolitan planning organization in order to receive federal funding to prepare and implement the regional transportation plan. California has eighteen metropolitan planning organizations, each governed by elected officials from the cities and counties that comprise the particular metropolitan planning area.

Federal law provides a process and guidance for each state to define metropolitan planning areas by agreement between a metropolitan planning organization and the Governor.¹¹ These regions center on “urbanized” areas defined by the U.S. Census Bureau and may include additional areas beyond the urbanized area.

SB 375’s greenhouse gas reduction provisions affect only the eighteen metropolitan planning organizations in California and do not affect the non-metropolitan regional transportation planning agencies.¹² However, a number of provisions related to planning for housing are applicable to jurisdictions within metropolitan planning organizations and regional transportation planning agencies alike.¹³

Councils of Governments

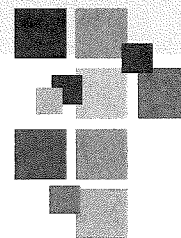
Councils of governments (COGs) are responsible for determining the share of the regional need for housing for each of the counties and cities within the council of government's region. Councils of governments can be single or multi-county entities created by a joint powers agreement among the member agencies. The governing board of each of California's 25 councils of governments consists of elected officials drawn from the cities and counties belonging to the council of governments, as established in the joint powers agreement for each agency.

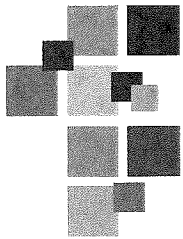
In most cases where the council of governments includes multiple counties, the council of governments and the metropolitan planning organization are the same organization; thus the council of government is also responsible for preparing the regional transportation plan and expenditure programs. An important exception is the nine-county San Francisco Bay Area, where by statute the Metropolitan Transportation Commission (MTC) serves as the metropolitan planning organization, and the Association of Bay Area Governments (ABAG) serves as the council of governments.¹⁴

RESOURCES TO LEARN MORE ABOUT REGIONAL PLANNING AGENCIES

For more information about regional transportation planning agencies, metropolitan planning organizations, and councils of governments in California, including a map and list of regional agencies, please see the website of the California Association of Councils of Governments at www.calcog.org/about/about.html.

More information about urbanized areas and federal guidelines for metropolitan planning organizations is available on the Federal Highway Administration FAQ page: www.fhwa.dot.gov/planning/census/faq2cdt.htm.





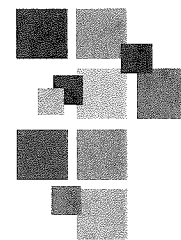
What Roles Do Local Officials Play in Regional Planning?

Local officials are key decision-makers in many aspects of the regional planning process. Local elected officials from the cities and counties in a region govern the regional agencies involved in the process. Appointed officials and staff from cities and counties serve a number of roles in the process as well.

The roles of local officials in the regional planning process include:

- Local elected officials serve on the governing boards of the metropolitan planning organizations. The metropolitan planning organizations have final responsibility for adopting the regional transportation plan. This includes adopting the “sustainable communities strategy” prepared under SB 375 as part of the regional transportation plan (or the “alternative planning strategy”, if one is required).¹⁵ (See the section on the sustainable communities strategy and alternative planning strategy beginning on page 11 for more information.)
- Local elected officials serve on the governing boards of the councils of governments that have final responsibility for approving the regional housing needs allocation to each city and county within the region.
- Local elected officials serving on city councils and county boards of supervisors are responsible for developing and adopting the local general plan. Neither the sustainable communities strategy nor the alternative planning strategy developed under SB 375 will supersede the general plan or other planning policies or authorities of a city or county. Nor must a local agency’s planning policies be consistent with either strategy.¹⁶
- Local city councils and county boards of supervisors will determine whether to make their local general plan consistent with the region’s sustainable communities strategy, thereby making California Environmental Quality Act streamlining incentives included in SB 375 available for residential development or transportation projects that are consistent with the sustainable communities strategy or alternative planning strategy.¹⁷

In addition, many local appointed officials and staff serve on advisory boards, committees, and task forces involved in the development of regional plans and policies for transportation and housing.



Greenhouse Gas Reduction and Regional Planning

A key focus California's effort to reduce greenhouse gas emissions that contribute to climate change is transportation. Cars and light trucks account for about 30 percent of California's greenhouse gas emissions.¹⁸ When all types of vehicles are included transportation overall accounts for 40 percent of California's greenhouse gas emissions.¹⁹

California laws seek to reduce carbon emissions from cars and light trucks in two ways.

1. Emissions Reductions. The first way is to reduce the amount of carbon that each vehicle emits, through measures like state standards for vehicle greenhouse gas emissions,²⁰ and the state's low carbon fuel standard.²¹ These laws and regulations require vehicles to use less fuel and for fuel to use less carbon, respectively. (For more information, see the state's AB 32 Scoping Plan²² at www.ca-ilg.org/AB32ScopingPlan.)

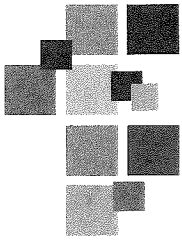
2. Vehicle Trip Reductions. The second way California laws seek to limit carbon emissions from cars and light trucks is to reduce the frequency and distance that people need to drive. SB 375 modifies the regional transportation planning and housing allocation processes with the goal of creating transportation networks and land use patterns where people will drive fewer miles in their cars.

Under SB 375, the California Air Resources Board (CARB) has set regional targets for reducing emissions from cars and light trucks for each of the eighteen metropolitan planning organizations in California.²³

The approach to attain these emission reduction targets established by SB 375 includes three components:

- Modifying transportation patterns and investments at the regional level through the regional transportation plan;
- Linking land use, transportation, and housing decisions at the regional and local level through the regional housing needs assessment process and the housing element of the local general plan; and
- Providing incentives to streamline the environmental review of plans and projects that assist in meeting regional greenhouse gas reduction targets.

These three components of the regional and local planning process intended to reduce greenhouse gas emissions are described in the following sections.



The Regional Transportation Plan

The regional transportation plan, sometimes called a metropolitan transportation plan, is a long-range framework for improvements to the region's transportation network. In particular, the regional transportation plan outlines transportation investments for a region, based on a minimum 20-year (or longer) outlook for likely growth in the region.

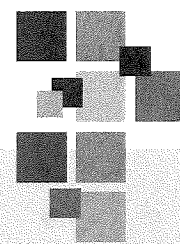
Major activities in the development of the regional transportation plan include:

- Developing a realistic long-range land use scenario for regional growth. The scenario must be based on current planning assumptions embodied in city and county general plans and spheres of influence within the region, along with likely economic and growth forecasts. (This requirement predates SB 375 and is linked to federal transportation planning requirements.²⁴)
- Assessing the long-term mobility needs of the region, including the movement of both people and goods, and developing a plan to meet those needs.
- Developing short and long-range transportation goals, objectives and policy statements.

- Describing transportation projects proposed during the 20-year horizon of the plan.
- Identifying funding sources for implementing the plan.
- Developing a financial plan that covers costs related to development, maintenance, and operation of the transportation system.²⁵

Taken together, these activities combine to create a framework for understanding the roles of different agencies and organizations involved in transportation planning, program management, and service delivery.

In each region, the metropolitan planning organization (sometimes referred to by its acronym MPO) or regional transportation planning agency (sometimes referred to by its acronym RTPA) develops the regional transportation plan every four years, and updates it after two years.



Goals of Regional Transportation Planning

Regional transportation planning brings together cities, counties, transit providers, tribal governments, and a variety of other stakeholders and residents to develop a long-range plan for meeting the mobility needs of the region. The process develops a region's vision of its long-range transportation goals, objectives, and strategies. This vision must be realistic and within fiscal constraints. The regional transportation plan is the conduit for local, state, and federal funding to pay for transportation projects in the region and is a requirement of federal law. Broadly, federal law requires that the planning for regional transportation be "continuing, cooperative, and comprehensive" and consider all modes of transportation, such as cars, trucks, public transit, walking, and bicycling.²⁶

Goals of regional transportation planning include:²⁷

- Encouraging and promoting the safe and efficient management, operation and development of a regional intermodal transportation system that, when linked with appropriate land use planning, will improve the mobility of goods and people by providing more transportation choices, freedom of movement, and access to regional goods and services.
- Relieving traffic congestion and shortening commutes to allow people more time to do what they want or need to do, and increasing business productivity;
- Facilitating the efficient movement of goods to increase the region's economic strength and competitiveness;
- Improving public health by reducing exposure to air pollution and providing opportunities for residents to be physically active through walking and bicycling;
- Reducing greenhouse gas emissions in accordance with California law in the more urbanized regions of the state; and
- Furthering the attainment of the federal and state clean air acts and other laws related to the effects of transportation on public health, environmental protection, and resource management.

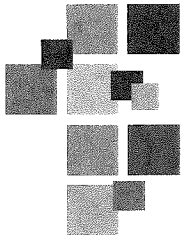
Figure 1 AIR POLLUTION, PUBLIC HEALTH, AND THE REGIONAL TRANSPORTATION PLAN

Vehicle emissions can have serious effects on air quality and public health. Regional transportation planning agencies should consult with appropriate state and federal agencies on air quality issues during the preparation of the regional transportation plan. This consultation is mandatory for non-attainment regions.²⁸

The regional transportation plan is also subject to the environmental review requirements of the California Environmental Quality Act (CEQA).²⁹ Generally, the regional agency prepares an environmental impact report in tandem with the regional transportation plan to identify and evaluate the full range of the plan's environmental impacts.

The regional transportation plan may also be subject to a process known as "conformity" if the region has not met health-based air quality standards under the federal Clean Air Act.³⁰ The conformity process requires the regional transportation plan to conform to the state implementation plan (SIP) adopted by the California Air Resources Board to meet federal air quality standards in the region (see Figure 3 on page 9 for more information).

A metropolitan planning organization or regional transportation planning agency makes the initial determination that its regional transportation plan is "in conformity" with the state implementation plan, subject to federal review.³¹



Funding and Implementing Transportation Projects in the Regional Transportation Plan

California's transportation system consists of a vast network of streets and highways, public transit (bus and passenger rail), airports and seaports as well as other transportation modes such as bicycle, pedestrian and ferry systems. These systems provide for the mobility and accessibility of people, goods, services and information throughout the state.

Jurisdiction over the operation and maintenance of these transportation systems is shared between the state, regional agencies, and local agencies. Funding comes from federal, state, regional and local taxes, bonds, fees and assessments, as well as private investments.

For more information on this topic, see *Transportation Funding in California*, available on the CalTrans website at: www.dot.ca.gov/hq/tpp/offices/ote/fundchrt.html

Regional transportation plans are the basis for funding transportation projects in California's regions (see Figure 4 on page 10). Only projects included in these plans can be "programmed" for state or federal funding in the region's transportation improvement program (sometimes referred to by its acronym TIP). The transportation improvement program identifies which projects will receive funding for environmental studies, right-of-way acquisition, project development, and construction.

Regional planning agencies update the transportation improvement program every two years. Both the RTP and the TIP are major elements of the region's annual transportation work plan, called the "overall work plan." The overall work plan outlines the transportation planning studies and tasks the regional agency will undertake in a given year.

Development and approval of the transportation improvement program is a multi-step process involving regional and inter-regional components. The California Transportation Commission must review and approve portions of the transportation improvement program that seek federal or state funding through the state transportation improvement program, or STIP. (The California Transportation Commission is responsible for programming and allocating funds for the construction of highway, passenger rail and transit improvements throughout California).³²

Additionally, the regional transportation plan must be "financially constrained," meaning that it needs to identify reasonably available funding sources for each of the transportation projects included in the plan.³³ Further, for the state's 18 metropolitan planning organizations, programmed projects must be consistent with a sustainable communities strategy, which is also an element of the regional transportation plan.³⁴ Those areas outside the jurisdiction of a metropolitan planning organization are not subject to this requirement (see Figure 4 on page 10).

Figure 2

KEY REGIONAL TRANSPORTATION PLANNING RESOURCES AND DOCUMENTS

- Caltrans Office of Regional and Interagency Planning
www.dot.ca.gov/hq/tpp/offices/orip/index.html
- Key planning documents produced by the metropolitan planning organizations (MPOs) and regional transportation planning agencies (RTPAs):
 1. **Regional Transportation Plan (RTP)** – Provides a 20 plus-year framework for future transportation investments within the region.
 2. **Transportation Improvement Program (TIP)** – A prioritized list of transportation projects proposed for federal and state funding over the following four years. MPOs adopt and update the TIP every two years. The TIP must be consistent with the RTP and is a prerequisite for federal funding.
 3. **Overall Work Program (OWP)** – MPOs and RTPAs adopt an “overall work program” annually to identify the region’s transportation funding priorities and planning activities for that fiscal year. The OWP is also referred to as a “unified planning work program.”

For more about these and other documents included in the regional transportation planning process, see the California Transportation Commission’s *2010 Regional Transportation Plan Guidelines* (especially section 2.4) at www.catc.ca.gov/programs/rtp.htm.

Figure 3

MORE ABOUT TRANSPORTATION PLANNING AND AIR QUALITY CONFORMITY

The federal Clean Air Act requires air quality in a region to meet a national standard called the National Ambient Air Quality Standard (sometimes referred to by the acronym NAAQS) set by the US Environmental Protection Agency (EPA). If the region fails to meet the standard, it must prepare a plan for attaining that goal. The air quality plan must include actions related to both stationary sources of air pollution (such as factories and power plants) and mobile sources of air pollution (from transportation).

Areas that have not met, or “attained,” the National Ambient Air Quality Standards, must implement a “transportation conformity” process. The conformity process requires a metropolitan planning organization to determine that its regional transportation plan is in conformity with the area’s plan for reaching “attainment” of the air quality standard.

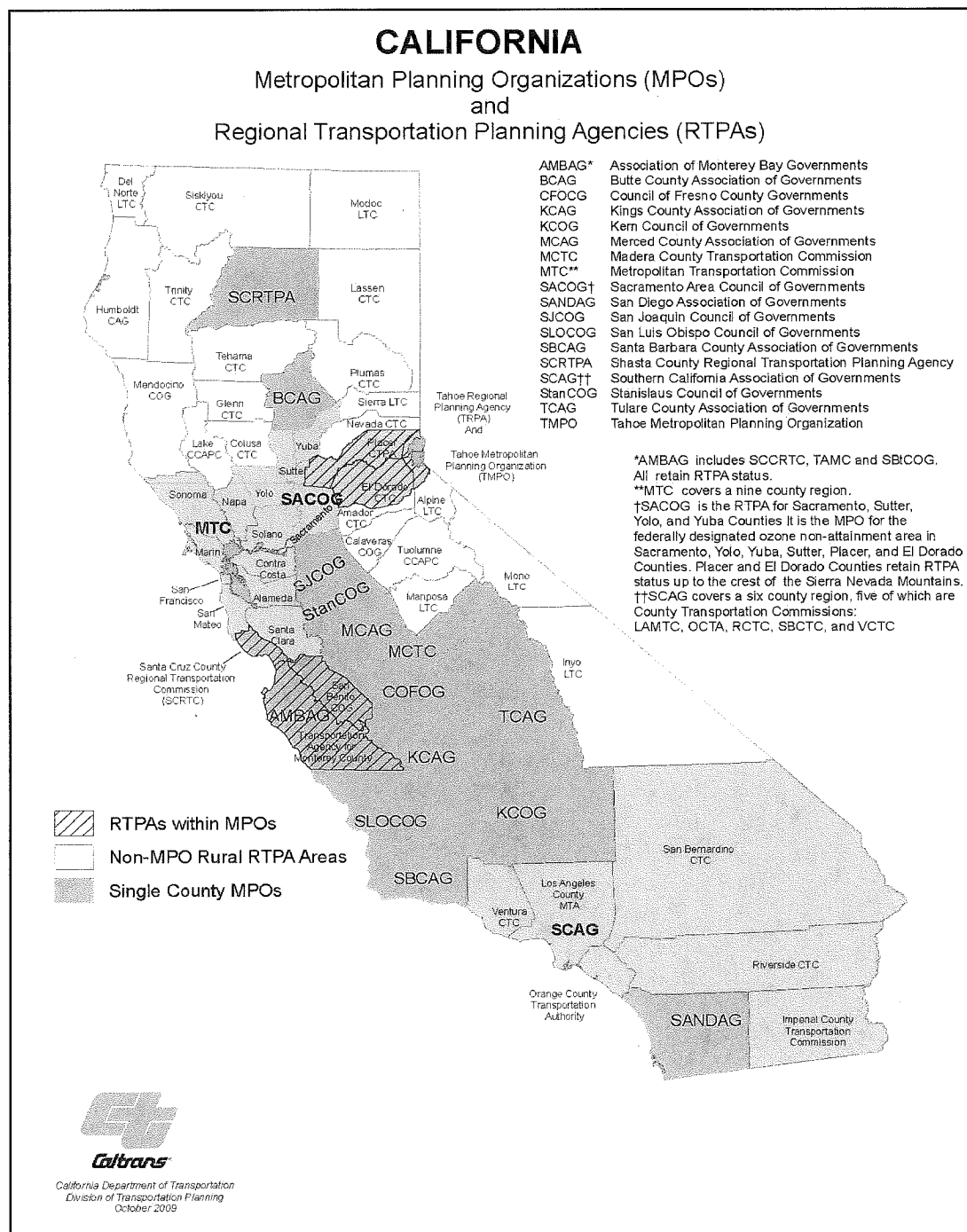
(See 23 C.F.R. § 450.322(l); 40 C.F.R. § 93.104.)

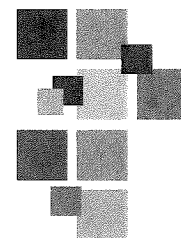
Following that initial determination, the US Department of Transportation’s Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) must approve the metropolitan planning organization’s conformity determination before the regional transportation plan is valid.

The Environmental Protection Agency determines what pollutants are included in the NAAQS and sets the criteria for defining the standard. In 2009, the EPA began the process of including greenhouse gases on the list of regulated pollutants for which it will set air quality standards.

Figure 4

(Full color version available at www.dot.ca.gov/hq/tpp/offices/orip/list/agencies.html)





The Sustainable Communities Strategy – A New Component of the Regional Transportation Plan in Metropolitan Regions

In October 2010 the California Air Resources Board released regional greenhouse gas reduction targets to each of California's 18 metropolitan planning organizations, setting in motion the process for each region to include a "sustainable communities strategy" (often referred to by its acronym SCS) as part of its next regional transportation plan update. This requirement does not apply to regional transportation planning agencies that are not within the jurisdiction of a metropolitan planning organization.

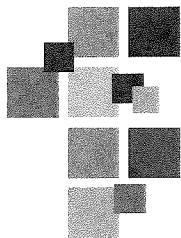
A sustainable communities strategy provides a regional framework for growth that identifies the "general location of uses, residential densities, and building intensities" within the region as well as areas sufficient to meet the region's housing needs and a regional transportation network sufficient to serve that growth.³⁵

The sustainable communities strategy identifies how the metropolitan planning organization proposes to reduce greenhouse gas emissions from cars and light trucks through integrated land use, transportation, and housing planning. The sustainable communities strategy must strive to meet regional greenhouse gas reduction targets set by the California Air Resources Board if there is a feasible way to do so.³⁶

The sustainable communities strategy provides each region with a tool for synchronizing three state mandated planning processes:

- The Regional Transportation Plan (RTP);
- The Regional Housing Needs Allocation (RHNA); and
- Updating the housing element of the general plan for each city and county in the region.

In addition to aligning the schedules for each of these planning processes, SB 375 requires that all three share a common set of reasonable land use assumptions for the region. One such assumption, for example, would be the distribution of housing units established through the regional housing needs allocation (see below).³⁷ The sustainable communities strategy must identify areas sufficient to house all economic segments of the region's population for an eight year planning period.³⁸



Alternative Planning Strategy

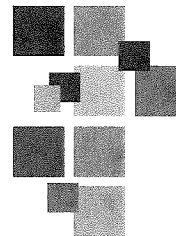
If the sustainable communities strategy falls short of meeting the regional greenhouse gas reduction target established by the Air Resources Board, then the region must also prepare an “alternative planning strategy” (sometimes referred to by its acronym APS).³⁹ The APS must include a combination of alternative development patterns, transportation investments, or additional transportation measures or policies that, if implemented, would meet the regional greenhouse gas reduction targets.⁴⁰

Unlike the sustainable communities strategy, the alternative planning strategy is not part of the regional transportation plan. Thus, transportation funding decisions in the regional transportation plan do not have to be consistent with the alternative planning strategy, as they do with the sustainable communities strategy.

California Air Resources Board Review

After adopting a sustainable communities strategy or alternative planning strategy, the metropolitan planning organization must submit it to the California Air Resources Board (CARB) for review. The statute limits the Air Resources Board’s review; the board can accept or reject the metropolitan planning organization’s assertion that the sustainable communities strategy or the alternative planning strategy would, if implemented, achieve the region’s greenhouse gas reduction target set by the board.⁴¹

If the Air Resources Board determines that the sustainable communities strategy would not meet the target, then the metropolitan planning organization must either revise the strategy, or submit an alternative planning strategy (if it has not already done so) that would meet the target.⁴²



Linking Transportation, Land Use and Housing

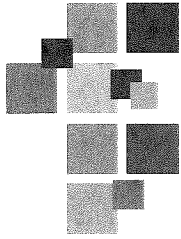
The sustainable communities strategy uses a common set of land use assumptions to link regional planning for transportation and housing with land use planning. These common assumptions apply to the regional transportation

plan and the allocation of each city's and county's share of the regional housing need. The housing share assigned to each locality is determined through the regional housing needs allocation (RHNA) process.

Figure 5 **OBJECTIVES OF THE REGIONAL HOUSING NEEDS ALLOCATION**

Each locality's regional housing needs allocation is distributed among four income categories to address the required provision for planning for all income levels. The regional housing need allocation is required to promote the following objectives:⁴³

1. Increase the housing supply and the mix of housing types, tenure and affordability in all cities and counties within the region in an equitable manner;
2. Promote infill development and socioeconomic equity, the protection of environmental and agricultural resources, and the encouragement of efficient development patterns; and
3. Promote an improved intraregional relationship between jobs and housing.



Regional Housing Needs Allocation Process

The California Department of Housing and Community Development (sometimes referred to by its acronym HCD) is responsible for allocating each region's share of the statewide housing need to each council of governments. The region's share of the statewide housing need is based on state Department of Finance population projections and regional population forecasts used in preparing regional transportation plans.

The council of governments develops a regional housing need plan (RHNP) allocating the region's share of the statewide need to cities and counties within the region. The "regional housing need" is a minimum projection

of additional housing units needed to accommodate the projected growth in the number of households for all income levels by the end of the housing element's statutory planning period.

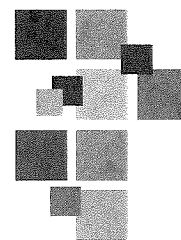
Each city and county is responsible for regularly updating the housing element of its general plan. The housing element of a city or county general plan must include goals and policies for how the locality will provide for its share of the regional housing need, including zoning and land use policies.⁴⁴ For example, to accommodate the regional housing need, cities and counties may include rezoning programs to allow higher density and more compact land uses.

Figure 6

COORDINATING REGIONAL AND LOCAL PLANNING FOR HOUSING

The sustainable communities strategy influences regional and local planning for housing through a four-step process:

1. The state Department of Housing and Community Development (HCD), in consultation with each council of governments (COG), determines the projected housing needs for each region every eight years.⁴⁵
2. Metropolitan planning organizations develop a sustainable communities strategy that accommodates the region's housing need and strives to meet the regional greenhouse gas reduction target set by the California Air Resources Board.⁴⁶
3. The council of governments for the region then allocates a share of the regional housing need to each of the cities and counties in the region for the eight year planning period. The allocation must be "consistent with the development pattern included in the Sustainable Communities Strategy." ⁴⁷
4. The cities and counties then revise their general plan housing elements to accommodate their housing allocation. Housing elements must be updated within eighteen months of the date the metropolitan planning organizations adopts the regional transportation plan.



Streamlining Environmental Review

Under SB 375, cities and counties have the option to provide incentives that “streamline” the environmental review process. These provisions apply to certain types of projects that are consistent with an adopted regional sustainable communities strategy or alternative planning strategy.⁴⁸

The provisions for a full or partial exemption from the California Environmental Quality Act review were included in SB 375 as an incentive for projects designed to reduce greenhouse gas emissions from vehicle trips. Under that law, the environmental review of a variety of projects that are consistent with an adopted sustainable communities strategy or alternative planning strategy does not have to analyze certain aspects of the project that relate to climate change.⁴⁹

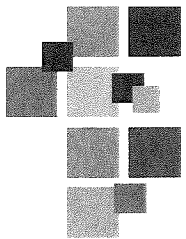
The environmental review provisions of SB 375 are detailed and complex. For more information on this topic, please visit the ILG website at www.ca-ilg.org/SB375.

How Do These Regional Plans and Environmental Review Incentives Affect Local General Plans?

SB 375 specifically provides that cities and counties retain ultimate authority over local land use decisions.⁵⁰ Cities and counties need not amend or update their general plans to conform to the land use patterns included in the regional transportation plan and the sustainable communities strategy. However, because the regional transportation plan, the regional housing needs allocation, and the sustainable communities strategy are based on a common set of land use assumptions, these regional plans offer a collective vision for the region that may influence how local general plans evolve over time.

Three important ways regional planning for transportation and housing affects local general plans are:

- SB 375 synchronizes the schedules for updating the regional transportation plan, the regional housing needs allocation, and the update of the local general plan housing element into a new integrated planning cycle for each region.⁵¹
- The sustainable communities strategy included in the regional transportation plan uses a common set of land use assumptions for the regional transportation plan and the regional housing needs allocation, which will form the foundation for updating local housing elements.⁵²



- The California Environmental Quality Act incentives included in SB 375 can only be used if the local agency and the metropolitan planning organization agree that a project (which must be consistent with the general plan) is also consistent with the regional sustainable communities strategy or alternative planning strategy.⁵³

The sustainable communities strategy combines regional planning for transportation and housing into a strategy for reducing greenhouse gases in the region. To achieve the region's greenhouse gas reduction target, the sustainable communities strategy could include land use patterns that differ from those previously envisioned in the region. However, the assumptions used must be consistent with current planning assumptions for federal air conformity purposes—in other words, the assumptions must be grounded in what the local governments are reasonably likely to include in their plans and approve.⁵⁴

Because all general plans must be internally consistent, other elements (such as land use and circulation) may need to be revised to reflect the land use assumptions contained in the updated housing element.⁵⁵ In addition, local jurisdictions may decide to amend their general plans for consistency with the sustainable communities strategy to help streamline the environmental review of development projects.

Involving the Public in Regional Planning

The success of California's effort to reduce greenhouse gas emissions through coordinated regional planning will depend in large part on the extent of public support for the proposed changes to land use, transportation, and housing patterns included in local and regional plans. Public support in turn requires that the public be informed, consulted, engaged and heard as officials make decisions about the future of their communities through the regional planning process.

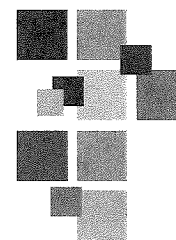
Local officials can play a leadership role by encouraging their constituents and other members of the public to actively participate in regional planning and by taking advantage of opportunities to engage in that planning process themselves.

ILG OFFERS RESOURCES ON PUBLIC PARTICIPATION IN REGIONAL PLANNING

The Institute for Local Government has prepared two guides for local officials on engaging the public in regional planning.

- Understanding SB 375: Public Participation Requirements
- Understanding SB 375: Opportunities to Engage the Public in Regional Planning

For more information on this topic, including a free electronic copy of these publications, please visit the ILG website at www.ca-ilg.org/RegionalPlanning.



Additional Resources and References

Online Glossaries

These online glossaries provide more information about terms related to the regional planning issues discussed in this guide, and others:

- Federal Highway Administration online glossary: www.fhwa.dot.gov/planning/glossary/index.cfm
- ILG Glossary of Land Use Planning Terms: www.ca-ilg.org/PlanningTerms
- ILG SB 375 Legal Analysis: www.ca-ilg.org/SB375LegalAnalysis

Key Acronyms in this Document

- APS – alternative planning strategy
- CARB – California Air Resources Board
- CEQA – California Environmental Quality Act
- COG – council of governments
- Caltrans – California Department of Transportation
- FTIP – Federal Transportation Improvement Program (also referred to as the regional transportation improvement program or RTIP)
- HCD – California Department of Housing and Community Development
- MPO – metropolitan planning organization
- OWP – overall work program (also referred to as UPWP – unified planning work program)
- RHNA – regional housing needs allocation
- RTP – regional transportation plan (sometimes referred to as MTP – metropolitan transportation plan)
- RTPA – regional transportation planning agency
- SCS – sustainable communities strategy

Endnotes

- ¹ State of California, Department of Finance, Population Projections for California and Its Counties 2000-2050, by Age, Gender and Race/Ethnicity, Sacramento, California, July 2007.
- ² See California Health and Safety Code, § 38500 et. seq.
- ³ SB 375 (Steinberg, Chapter 728, Statutes of 2008).
- ⁴ According to the California Department of Transportation, regional blueprints are “collaborative planning processes that engage residents of a region in articulating a vision for the long term future of their region.The process leads to the development of alternative growth scenarios for the region, and through a public process a preferred growth scenario is selected that can then guide regional and local land use and transportation decisions for a future that is sustainable, while meeting residents’ needs and providing a high quality of life for all.” See <http://calblueprint.dot.ca.gov/>.
- ⁵ See California Government Code, § 29535.
- ⁶ See California Government Code, § 29532, et. seq.
- ⁷ See California Government Code, § 29532.1.
- ⁸ See California Government Code, § 29532 (b).
- ⁹ See California Government Code, § 29532 (b) and (c).
- ¹⁰ 23 USC 134(d).
- ¹¹ 23 USC 134(e).
- ¹² California State Association of Counties (CSAC), *Addressing Greenhouse Gas Emissions from the Transportation Sector via Regional Transportation Plans* (October 21, 2008), p. 5 (available at www.ca-ilg.org/).
- ¹³ CSAC, p. 9-11.
- ¹⁴ See California Government Code, § 29532.1 (a).
- ¹⁵ See California Government Code, § 65080(b)(2)(B).
- ¹⁶ See California Government Code, § 65080(b)(2)(J).
- ¹⁷ See Cal. Public Resources Code §§ 21155, 21155.1, 21155.2, and 21155.3.
- ¹⁸ CSAC.
- ¹⁹ CSAC.
- ²⁰ See Cal. Health and Safety Code § 43018.5. For additional information about California’s Clean Cars Program, *see also* http://www.arb.ca.gov/msprog/clean_cars/clean_cars.htm.
- ²¹ See Governor’s Executive Order S-01-07. For additional information about California’s Low Carbon Fuel Standard, *see also* <http://www.arb.ca.gov/fuels/lcfs/lcfs.htm>.
- ²² See Cal. Health and Safety Code § 38561. For additional information about the AB 32 Scoping Plan and its development, *see also* <http://www.arb.ca.gov/cc/scopingplan/scopingplan.htm>.
- ²³ See Cal. Gov’t Code § 65080(b)(2)(A).
- ²⁴ See 23 CFR 450.322 (c) and (e).
- ²⁵ For a detailed discussion of the goals of the regional transportation planning process, please see California Transportation Commission (CTC), *2010 California Regional Transportation Plan Guidelines* (Adopted April 7, 2010), § 1 (available at <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/index.html>).
- ²⁶ See 23 USC 134(c)(3).
- ²⁷ For a detailed discussion of the goals of the regional transportation planning process, please see California Transportation Commission (CTC), *2010 California Regional Transportation Plan Guidelines* (Adopted April 7, 2010), § 1 (available at <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/index.html>).
- ²⁸ See Title 40, Code of Federal Regulations, § 93.105 and § 93.113 (40 CFR 93). For additional discussion of consultation requirements, *please see* California Transportation Commission (CTC), *2010 California Regional Transportation Plan Guidelines* (Adopted April 7, 2010), § 5.7, page 90, and § 2 more generally. (available at <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/index.html>).
- ²⁹ See California Transportation Commission (CTC), *2010 California Regional Transportation Plan Guidelines* (Adopted April 7, 2010), § 5. (available at <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/index.html>).
- ³⁰ See Title 40, Code of Federal Regulations, § 93 (40 CFR 93).
- ³¹ See Title 40, Code of Federal Regulations, § 93.104 (40 CFR 93) and Title 23 Code of Federal Regulations § 450.322(l). For additional discussion of roles and responsibilities related to the conformity process, please see U.S. Department of Transportation, Federal Highway Administration (FHWA), *Transportation Conformity: A Basic Guide for State and Local Officials* (available at http://www.fhwa.dot.gov/environment/air_quality/conformity/guide/guide06.cfm).

³² See California Transportation Commission website at <http://www.catc.ca.gov/>.

⁵⁵ See *Federation of Hillside and Canyon Associations v. City of Los Angeles*, 126 Cal. App. 4th 1180, 24 Cal. Rptr. 3d 543 (2004).

³³ See Title 23, Code of Federal Regulations, § 450.322 (23 CFR 450), Cal. Government Code Section 65080(b)(4). For additional discussion *please see* California Transportation Commission (CTC), *2010 California Regional Transportation Plan Guidelines* (Adopted April 7, 2010), § 6.3 (available at <http://www.dot.ca.gov/hq/tpp/offices/orip/rtp/index.html>).

³⁴ See Cal. Government Code Section 65080(b)(2)(B).

³⁵ See California Government Code, § 65080(b)(2)(B)(i).

³⁶ See Cal. Gov't Code § 65080(b)(2)(B)(vii).

³⁷ See California Government Code, § 65080(b)(2)(B).

³⁸ See California Government Code, § 65080(b)(2)(B)(iii).

³⁹ See Cal. Gov't Code § 65080(b)(2)(H) and 65050(b)(2)(I).

⁴⁰ See California Government Code, § 65080(b)(2)(I).

⁴¹ See California Government Code, § 65080(b)(2)(J)(ii).

⁴² See Cal. Gov't Code § 65080(b)(2)(j)(iii).

⁴³ See Cal. Government Code Section 65584(d).

⁴⁴ Cal. Gov't Code § 65583 et seq.

⁴⁵ See Cal. Gov't Code § 65584(b).

⁴⁶ See Cal. Gov't Code § 65080(b)(2).

⁴⁷ See Cal. Gov't Code § 65584.04(i)(1).

⁴⁸ See Cal. Gov't Code § 65080(b)(2)(J)(ii).

⁴⁹ See Cal. Pub. Res. Code §§ 21155, 21155.1, 21155.2, and 21155.3.

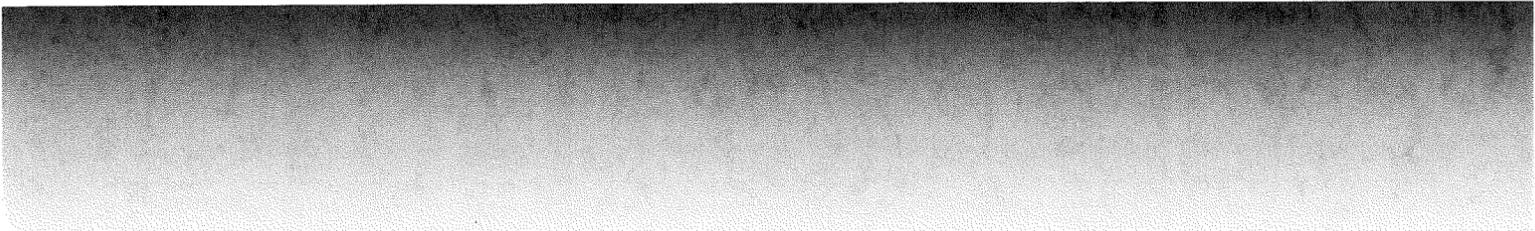
⁵⁰ A sustainable communities strategy and alternative planning strategy does not regulate the use of land. See Cal. Gov't Code § 65080(b)(2)(J).

⁵¹ See *Understanding SB 375: A Local Official's Guide*, Institute for Local Government, November 2010, p. 20.

⁵² See Cal. Gov't Code § 65080(b)(2).

⁵³ See Cal. Pub. Res. Code § 21155(a).

⁵⁴ See Cal. Gov't Code § 65080(b)(2)(B) and 40 C.F.R. § 93.110.



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SURREY LANGLEY SKYTRAIN AND SOUTH OF FRASER RAPID TRANSIT STRATEGY REFRESH

Media Technical Briefing - Friday, July 19, 2019

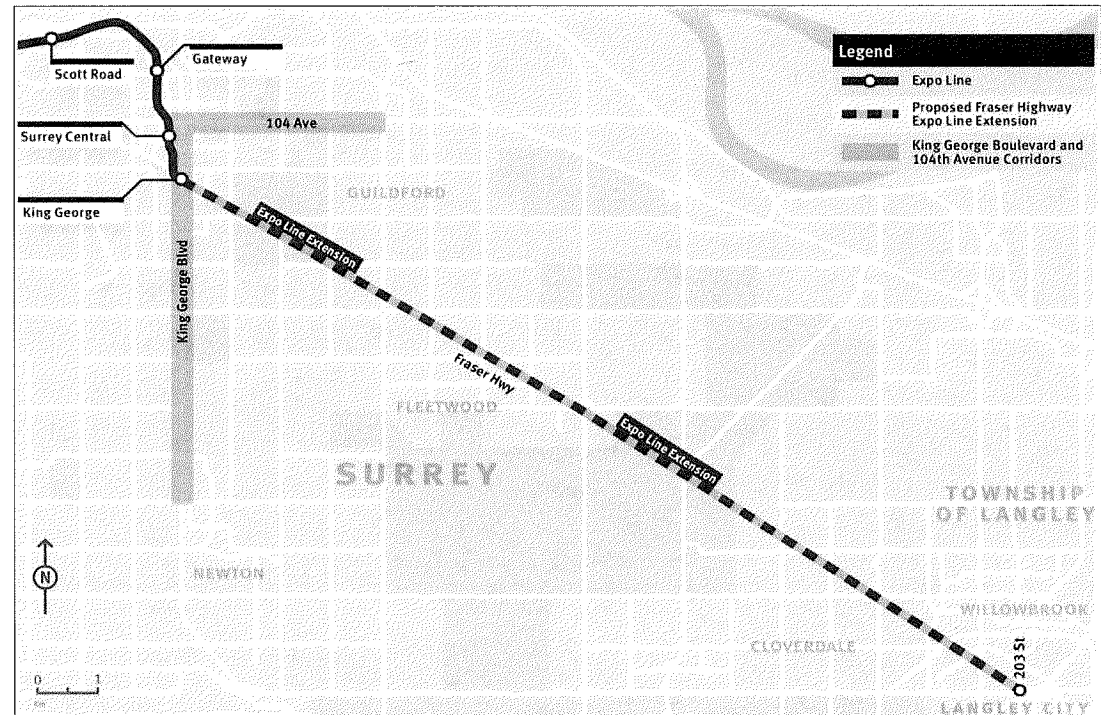


Together all the way



Background

- In 2014, the regional mayors' 10-Year Vision identified three priority corridors for rapid transit in Surrey and Langley: 104 Avenue, King George Boulevard, and Fraser Highway.
- The assumed cost of **\$3.55 billion** is notional at this stage, based on the projected cost of 27-kilometres of LRT.
- Approximately **\$1.6 billion** is currently available, subject to Surrey Langley SkyTrain project business case approval.
- A full-length Surrey Langley SkyTrain would cost **\$3.12 billion**.



Our Role

On December 13, 2018 the Mayors' Council directed TransLink to proceed with planning and project development for a SkyTrain on Fraser Highway, and, concurrently, initiate a planning process to refresh the south of Fraser rapid transit strategy, consistent with the 10-Year Vision of building 27-kilometres of rapid transit on three corridors.

This report provides a mid-year update to the Mayors' Council.





SURREY LANGLEY SKYTRAIN

surreylangleyskytrain.ca

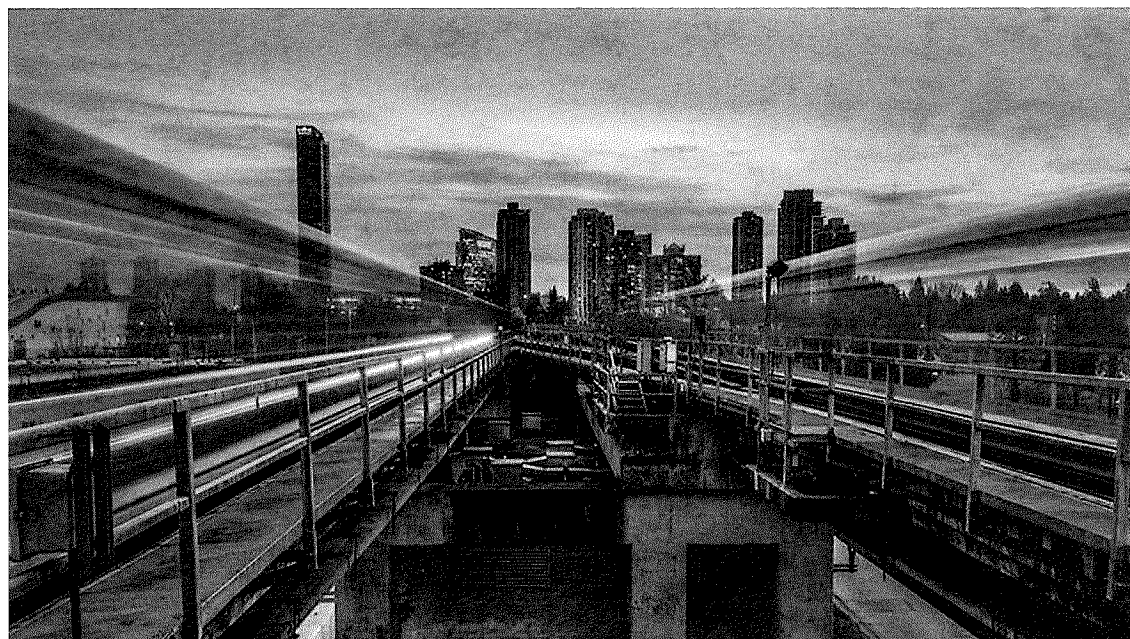


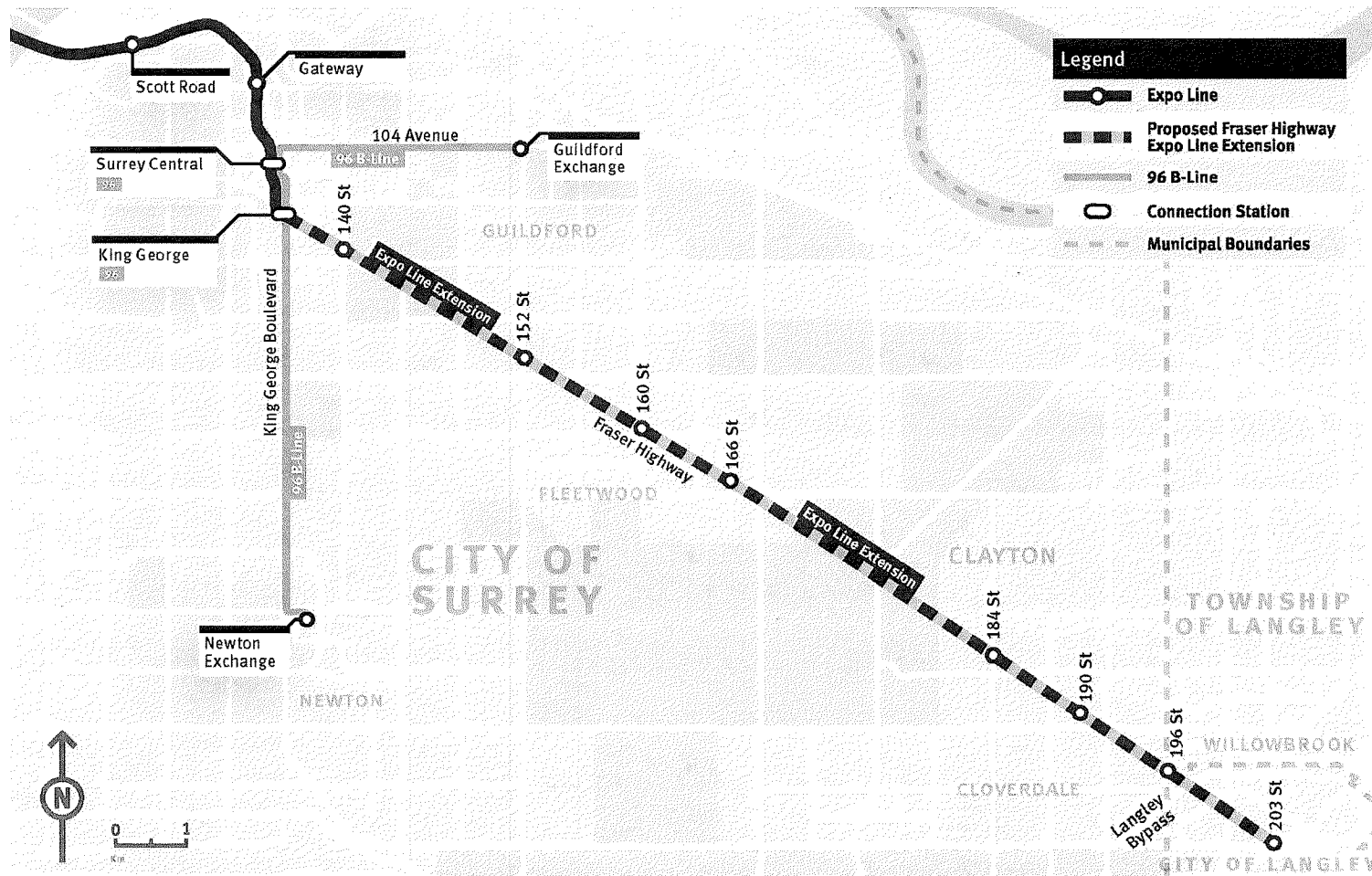
Together all the way



Project Overview

- Extend the Expo Line from King George Station to Langley City Centre along Fraser Highway
- 16-kilometres of elevated guideway
 - 8 stations
 - Three bus exchanges
 - Park-and-Ride spaces
- 55 additional SkyTrain vehicles
- Operations & Maintenance facilities





T Together all the way



Project Objectives

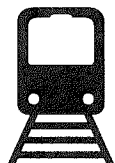
- Provide fast, frequent, reliable, and convenient transit across the region
- Increase access to employment, schools, housing, and services
- Advance local and regional prosperity
- Support healthy communities and a healthy environment
- Provide a great transportation user experience

While

- Spending wisely
- Implementing prudently



Project Outcomes



Improve transportation experience

Increase transit capacity

- Reduce travel time
- Improve reliability
- Improve road safety
- Reduce single vehicle occupancy



Support economic development

- Enhance goods and services movement
- Improve access to jobs and labour



Increase access to opportunities

- Connect town centres
- Connect people to housing, jobs, schools, and services
- Encourage high-density land use around stations



Healthy communities and environment

- Reduce GHGs
- Improve health outcomes from increased active transportation
- Reduced urban sprawl



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King George Station to Langley City



Capacity: 600 people per train every 4-5 minutes



Expected daily boardings:

- 62,000 in 2035
- 71,200 in 2050



Frequency:

- 4 - 5 minutes peak periods in both directions
- 10 minutes off-peak



Travel time: 22 minutes from Langley City Centre to King George SkyTrain Station



Benefit-Cost Ratio (BCR): 1.24



Cost: \$3.12 billion

- Surrey to reimburse up to \$39 million for LRT Project



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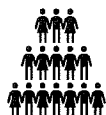


Staging Scenario: King George Station to 166 Street (Fleetwood)



Overview:

- 7 km
- 4 stations
- 25 vehicles



Expected daily boardings:

- 39,900 in 2035
- 44,200 in 2050



Travel time: 9.5 minutes to Fleetwood



Benefit-Cost Ratio (BCR): 1.12

Cost: \$1.63 billion



In-service date: 5.5 years from project approval



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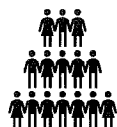


Staging Scenario: King George Station to 184 Street (Clayton)



Overview:

- 11 km
- 5 stations
- 35 vehicles



Expected daily boardings:

- 45,800 in 2035
- 51,500 in 2050



Travel time: 14.4 minutes to Clayton



Benefit-Cost Ratio (BCR): 1.17

Cost: \$2.22 billion



In-service date: 5.5 years from project approval



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Caring for the environment

- Environmental Screening Review
 - Informed by First Nations, public, and stakeholder feedback
 - Traffic and transportation
 - Archaeology and heritage
 - Fresh water aquatics
 - Vegetation and wildlife
 - Noise and vibration
 - Land use



Together all the way



Timeline – Moving Forward

WE ARE HERE

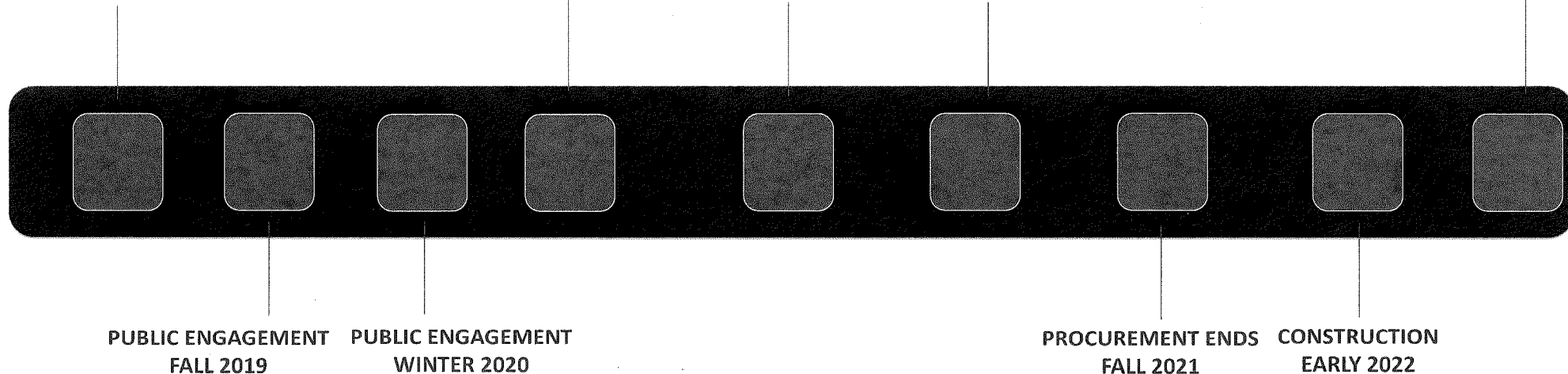
MAYORS' COUNCIL UPDATE
JULY 25, 2019

BUSINESS CASE READY
EARLY 2020

INVESTMENT PLAN
APPROVAL
SPRING 2020

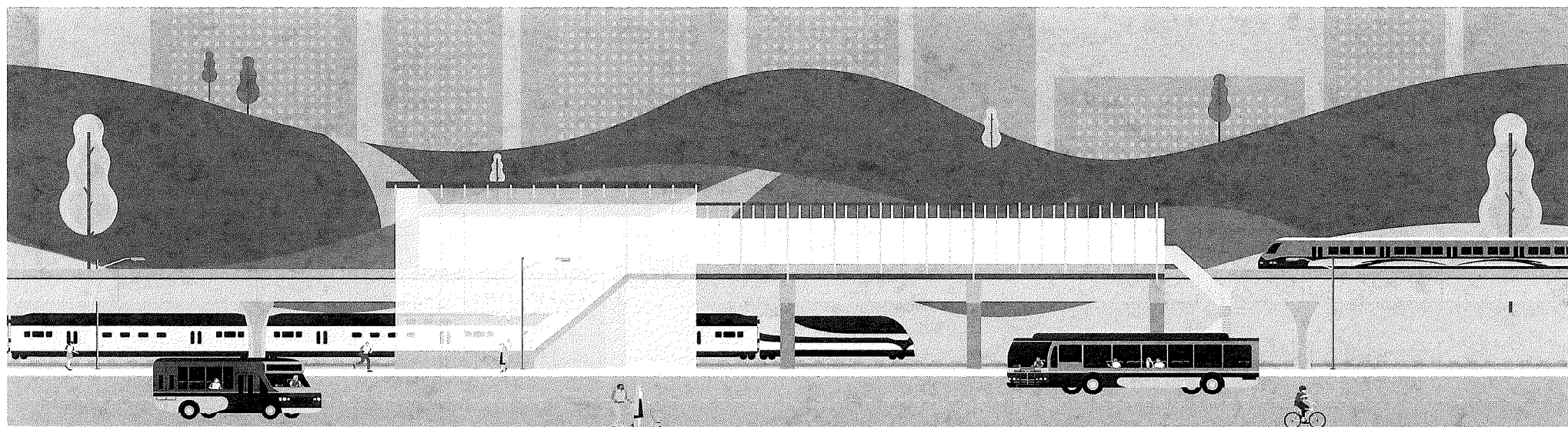
PROJECT APPROVAL
SUMMER 2020

IN SERVICE
LATE 2025



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South of Fraser Rapid Transit Strategy Refresh



Together all the way



Decision-making

July 25 Mayors' Council meeting:

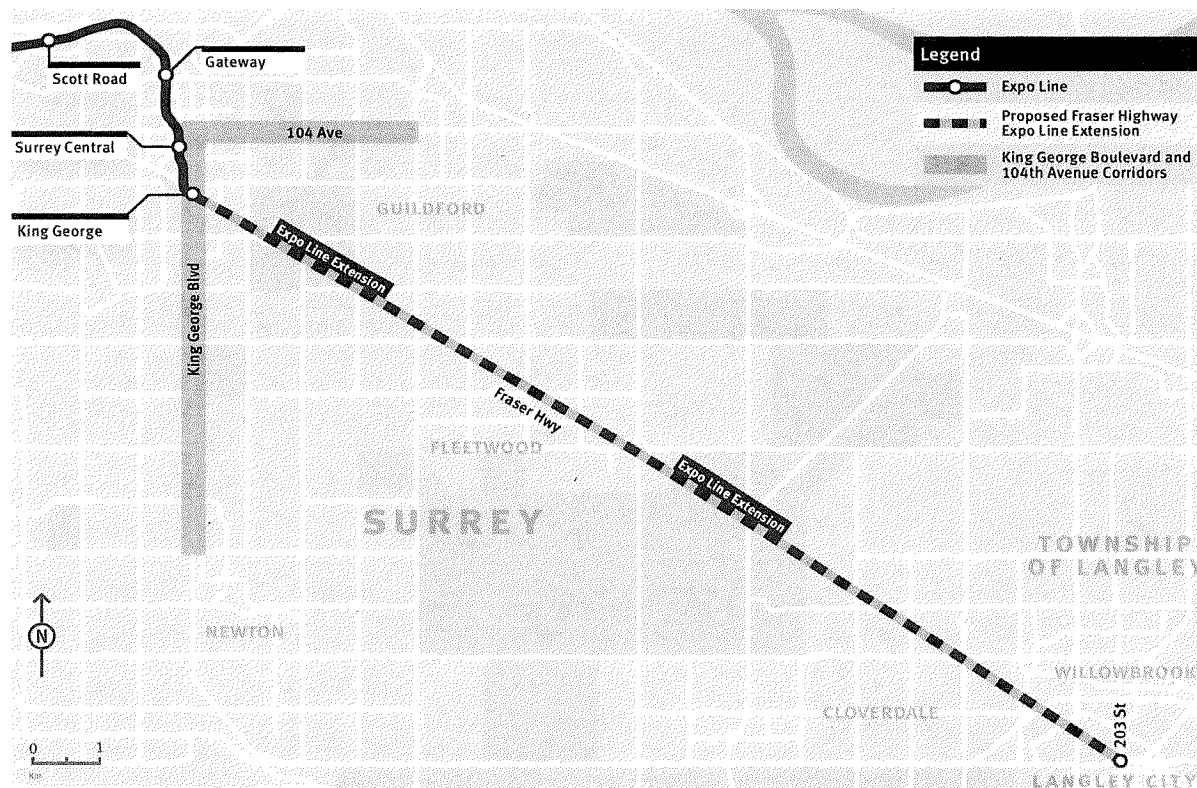
Proceed with the development of a business case for a Surrey Langley SkyTrain?

Future Mayors' Council meeting:

What are the preferred technologies for 104 Avenue and King George Boulevard?

South of Fraser Context

- Mayors' Vision includes **27-kilometres of rapid transit** on three corridors south of the Fraser
- Assumed cost for suspended LRT Project on all three corridors: **\$3.55 billion**
- Surrey Langley SkyTrain: **\$3.12 billion**



Together all the way



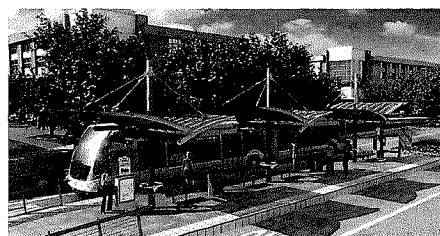
Technology Alternatives for 104 Avenue and King George Boulevard

Improved B-Line Service



- High-frequency, medium-capacity service
- Operates on the street, mostly mixed in with other traffic

Bus Rapid Transit (BRT)



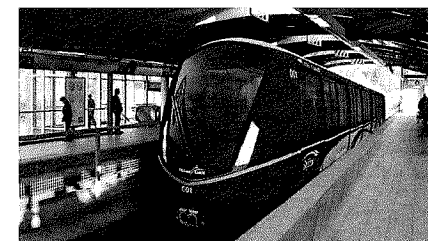
- High-frequency, medium-capacity service
- Operates on the street in its own lane, separated from other traffic

Light Rail Transit (LRT)



- High-frequency, high-capacity service
- Operates on the street in its own lane, separated from other traffic

SkyTrain



- High-frequency, high-capacity service
- Operates separately from traffic, usually elevated or underground or fenced off at surface level



Together all the way



Evaluating the Alternatives

	Consistent with the Vision for 27-kms of rapid transit?	Achievable for \$3.5 billion?	Estimated capital cost	Daily ridership in 2050	Could capacity meet demand in 2050?
B-Line on 104 & KGB	NO	YES	(Modest costs for ongoing improvements)	22-24,000	YES
BRT on 104 & KGB	YES	PARTLY	\$700-900 million	40-50,000	MAYBE
LRT on 104 & KGB	YES	NO	\$1.6-1.8 billion	45-55,000	YES
SkyTrain on KGB B-Line on 104	YES	NO	\$1.2-1.4 billion	55-60,000	YES



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SUMMARY



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Summary

Assumed cost for 27-kilometres of rapid transit south of the Fraser **\$3.55 billion**

Approved funding, subject to Surrey Langley SkyTrain business case approval **\$1.6 billion**

Updated cost estimate of full Surrey Langley SkyTrain **\$3.12 billion**

Key Recommendations

- Complete a business case for the proposed Surrey Langley SkyTrain that is ready for submission to senior governments by early 2020
- Complete a refresh of the south of Fraser rapid transit strategy that:
 - Considers technology options for 104 Avenue and King George Boulevard within \$3.55 billion
 - Recommends preferred technologies for 104 Avenue and King George Boulevard, including options that exceed \$3.55 billion



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THANK YOU

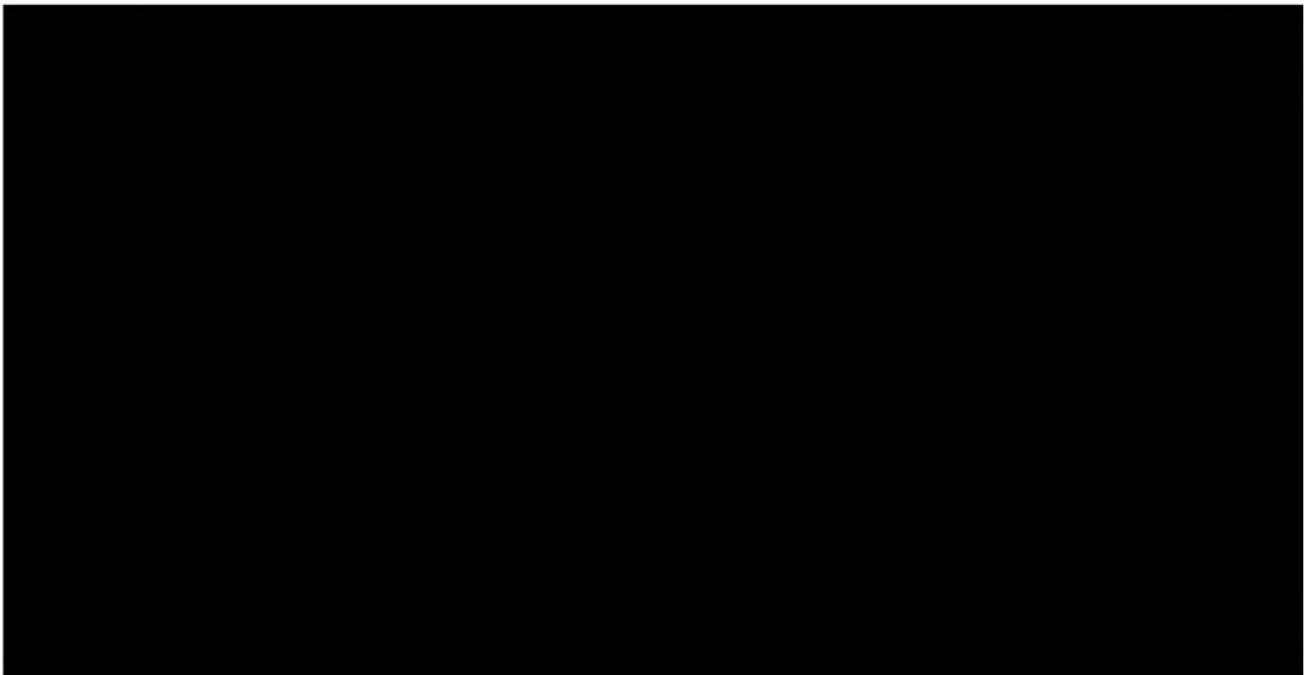


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Key Background: Surrey SkyTrain Project

- The Surrey SkyTrain Project is a 16-km elevated extension of the existing Expo Line along the Fraser Highway from King George Station to Langley City Centre. The preliminary estimates for the full Surrey to Langley SkyTrain are approximately \$3.12 billion.
- This project would replace the previously-approved Surrey LRT project, which is no longer supported by the Mayors Council that oversees TransLink.
- Metro Vancouver's mayors recently voted to send the business case for a SkyTrain line between Surrey and Langley to the federal and provincial governments for approval.



**Pages 226 to 227
are withheld
pursuant to paragraphs
21(1)(a) and 21(1)(b)
of the *Access to Information Act*.**

**Les pages 226 à 227
Font l'objet d'une exception totale
conformément aux dispositions des
paragraphes
21(1)(a) et 21(1)(b)
de la loi sur l'accès à l'information.**


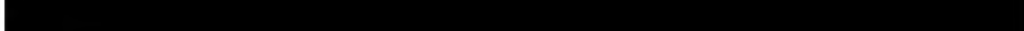
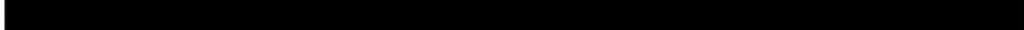


SECRET

SCENARIO NOTE TO THE MINISTER

MEETING BETWEEN MINISTER OF INFRASTRUCTURE AND COMMUNITIES AND THE EXECUTIVE COMMITTEE OF THE CANADIAN URBAN TRANSIT ASSOCIATION


MEETING DETAILS

- **DATE/TIME:** Wednesday, February 19, 2020 at 4:30 p.m.
- **LOCATION:** 322 Confederation
- **PARTICIPANTS:**
 - Kelly Gillis, Deputy Minister of Infrastructure and Communities
 - 
 - 
 - 
 - Members of the Canadian Urban Transit Association's Executive Committee.
 - Full list and biographies available at **Annex A**

PURPOSE

- This meeting is an opportunity to gain further insight into the current priorities of Canada's transit systems, and surface key considerations linked to the implementation of your mandate commitments. The Canadian Urban Transit Association (CUTA) may also raise issues linked to funding currently available under the Investing in Canada Infrastructure Program (ICIP).


HIGHLIGHTS/KEY CONSIDERATIONS

- CUTA prepared a pre-Budget submission in August 2019 outlining linkages between public transit and efforts to mitigate climate change (see **Annex B**). However, the organization's advocacy priorities have since evolved based on the details of your recent mandate letter.
 - The CUTA executive committee are likely to want to engage significantly on the creation of a permanent funding envelope for public transit.
- 

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SECRET

- 
- With respect to your mandate priority on zero-emission buses, CUTA has been generally supportive of the commitment to introduce new funding that would support 5,000 zero-emission vehicle (ZEV) school and transit buses, and are likely to present the findings of a recent survey that gauged their members' readiness for the transition to zero-emission fleets (**Annex C**). Key results include:
 - More than half of transit systems (59%) have concrete or partial plans to buy ZEBs between 2022 and 2026. However, larger systems generally reported being more prepared than smaller systems to begin a fleet-level transition to zero-emission technologies.
 - Overall, responding systems plan to procure 2,045 battery-electric buses and 1,416 hybrid-electric buses between 2020 and 2024 if funding for rolling stock and associated charging infrastructure is made available.
 - The survey also highlighted the critical need for supportive infrastructure such as charging stations and specialized storage facilities in order to deploy ZEV buses. 72% felt that without federal funding they would be unprepared to transition to zero-emission fleets.
 - Some systems have a standing commitment to compressed natural gas (CNG) fleets. Doug Morgan, CUTA's outgoing chair and head of Calgary Transit, has signalled opposition to the use of "zero-emission" terminology, arguing that CNG buses are more energy efficient for jurisdictions in Alberta, where transit systems would likely charge their buses using electricity generated from fossil fuels.
 - A letter provided by Calgary Transit outlining Calgary's alternative fuel strategy can be found at **Annex D**.

KEY BACKGROUND

- CUTA is a leading stakeholder representing the views of the public transit community in Canada, which includes both public transit operators and the manufacturers supplying the components of public transit systems.
 - You previously met with Marco D'Angelo, CUTA's President and CEO, and Chad Jeudy-Hugo, the organization's Director of Public Affairs, on January 10, 2020.

SECRET*Permanent Public Transit Envelope*

- CUTA's preferred delivery approach for permanent transit funding is through a top-up to the Gas Tax Fund that would be dedicated to transit.

*Zero-Emission Buses*

- Infrastructure Canada has been working with CUTA to assess the readiness of Canadian systems to adopt zero-emission buses. You may wish to thank them for sharing the results of their recent survey, which will help inform the department's ongoing policy work.
- You may also wish to indicate that you plan to engage with partners and stakeholders across the country in order to assess what is needed to transition to a zero-emission fleet.
- Details of ZEV transit investments made to date under the Investing in Canada Plan can be found at **Annex E**.

Investing in Canada Infrastructure Program

- CUTA may continue to advocate for the front-loading of existing funding under ICIP.



- Some members may voice concerns that the program's un-designated funds will be reinvested through the Gas Tax Fund by the end of 2021.






SECRET



PROPOSED TALKING POINTS/PROPOSED QUESTIONS***Permanent public transit funding***

- This government recognizes the importance of public transit in building communities in which Canadians want to live.
 - The government is committed to making federal funding for public transit permanent, as well as moving forward with a transition to zero-emission transit vehicles.
- How can the federal government improve its approach to public transit investments to ensure that we build the best projects in Canadian cities?

- 
- I would welcome your thoughts on how Infrastructure Canada could best support transit systems in this process.
 - What is the current demand for zero-emissions buses in your municipality and to what extent is the supportive infrastructure in place to support this demand?
 - In your opinion, what is the greatest barrier to large scale adoption?

- 
- The priority for the federal government is to invest in public transit infrastructure projects.
- 

SECRET***Zero-Emissions Buses***

- I am grateful for your organization's quick work to provide us with important data on demand for zero-emission buses. More information on this funding will become available in the coming months.
- I would welcome your thoughts on how Infrastructure Canada can best support transit systems and municipalities as they begin to transition their fleets.

[Response on Acceleration of ICIP]

- We will be working to make sure any unspent transit funding is transferred in a fair and transparent manner.

Attachments:

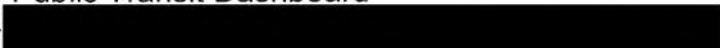
Annex A – Biographies

Annex B – CUTA Pre-Budget Submission (August 2019)

Annex C – CUTA ZEB Survey Results (February 12, 2020 - EMBARGOED)

Annex D – Letter from Calgary Transit RE: Alternative Fuel Strategy

Annex E – Public Transit Dashboard

Annex F – 

Doug Morgan

Chair of the Executive Committee, Canadian Urban Transit Association (CUTA)
Acting General Manager, Calgary Transit



Mr. Doug Morgan was hired as Calgary Transit Director in April 2012.

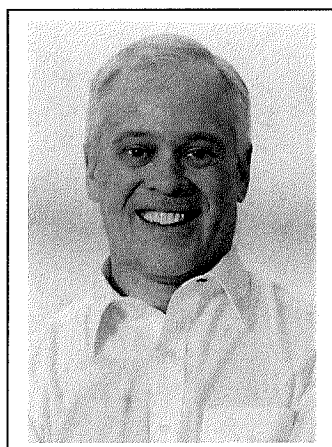
As Director, Doug has overseen a host of developments, including the completion of the West LRT in late 2012, the adoption and subsequent cancellation of the Connect Card electronic fare system in 2015, and the approval of the planned Green Line LRT late last year. Doug has stated that the highest priority for him on immediate horizon is the continued planning and development of the Calgary Green Line LRT.

Prior to this position, he has held the position of Manager of Service Design with City of Calgary's Transportation Department since 2006.

Doug holds a MBA, a Master of Engineering (Transportation Engineering), and a Bachelor of Science (Civil Engineering) degree from the University of Calgary.

Alain Mercier

First Vice Chair of the Executive Committee, Canadian Urban Transit Association (CUTA)
Directeur Général, Réseau de transport de la Capitale



Mr. Alain Mercier was appointed as the Director General for Réseau de transport de la Capitale in 2012.

Previous to this, he held the role of General Manager for OC Transpo from 2007 until 2012. Alain has years of experience in transportation management, having previously been the President of Balmire Transport, the CEO of Oerlikon Transtec, the Vice President of ALSTOM Transportation USA, and a Director at VIA Rail Canada.

Alain holds a Bachelor of Arts degree in Economics from Concordia University.

Suzanne Connor

Immediate Past Chair of the Executive Committee, Canadian Urban Transit Association (CUTA)

Director, Burlington Transit



Ms. Suzanne Connor was appointed Director of Burlington Transit in May 2017. In addition to her role at Burlington Transit, Suzanne is also the Chair of the Canadian Urban Transit Research and Innovation Consortium.

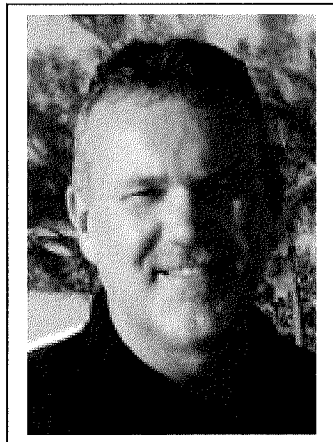
Previous to becoming Director at Burlington Transit, Suzanne was the General Manager for Transit at the City of Brampton. Under her leadership, the City of Brampton introduced Zum, a rapid-transit route, and became one of eight Ontario communities to participate in a trial of zero-emission, electric buses.

Suzanne has been involved in the transit industry since 1988, when she began working for Mississauga Transit in a number of positions in its operations department, which she would eventually lead. She began her career with Canada Post in 1976 where she spent 12 years in a series of managerial posts.

Patrick Delmore

Vice Chair (Finance) of the Executive Committee, Canadian Urban Transit Association (CUTA)

Executive Director, Transit Windsor



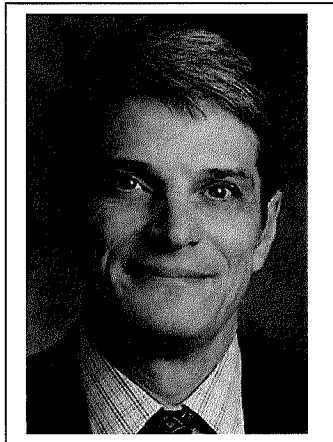
Mr. Patrick Delmore is currently the Executive Director at Transit Windsor.

Pat began his career with Transit Windsor as a bus driver in 1987, before moving into supervision, driver training, and managerial roles.

In 2016, Pat received an Individual Leadership Awards from CUTA for Excellence through his work with adding the UPASS program – a program that allows University of Windsor students to pay for transit passes through their tuition and has been instrumental in increasing ridership for Winsor Transit.

Kevin Desmond

Vice Chair (Communications and Public Affairs) of the Executive Committee,
Canadian Urban Transit Association (CUTA)
Chief Executive Officer, TransLink



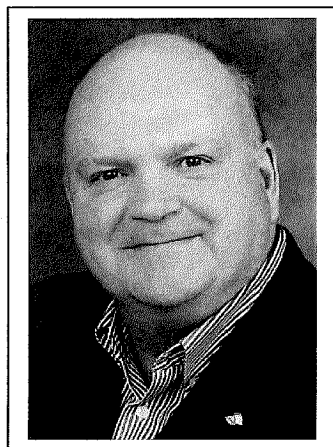
The TransLink Board of Directors selected Mr. Kevin Desmond as the new Chief Executive Officer on March 21, 2016.

Kevin was previously the General Manager of King County Metro Transit, a large regional transit system which serves Seattle, Washington, where he had worked since 2004. During his tenure, Metro Transit launched light rail and streetcar service, several bus rapid transit lines, and rolled out the ORCA Card. Prior to Metro Transit, Kevin was Vice-President of Operations and Development at Pierce Transit in Tacoma, Washington. Kevin also acted as Chief of Operations Planning for New York City Transit. Prior to that, he served as Deputy Director in Mayor Koch's Transportation Office and Assistant Commissioner for the New York City Taxi and Limousine Commission.

Kevin has a master's degree in public administration from New York University.

James M. McDonald

Vice Chair (Workforce Development) of the Executive Committee,
Canadian Urban Transit Association (CUTA)
Director, Saskatoon Transit



Mr. James McDonald was appointed the Director for Saskatoon Transit in June 2015.

Previous to this role, Jim held managerial roles with the City of Edmonton for seven years, where he was the Manager of Operational Support, Fleet Services, and a Division Supervisor for the Edmonton Transit Service. Jim also served for 22 years in the Canadian Armed Forces. When he left service, he was the Chief Logistics planner for Canadian Army activities in Western Canada.

Jim is a graduate of the Canadian Forces Land Command and Staff College and holds a Bachelor of Arts degree in History and Political Science from the University of Saskatchewan.

Dave Reage

Vice Chair (Technical Services) of the Executive Committee,
Canadian Urban Transit Association (CUTA)
Director, Halifax Transit

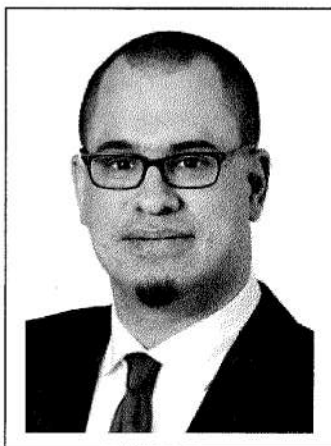


Mr. Dave Reage was officially appointed Director for Halifax Transit in 2016, a position that had been acting in since 2015. In his role as Director, Dave has managed a number of key initiatives to reshape Halifax Transit over the past nine years through the construction of new transit infrastructure, improvements to service delivery and efficiency, and transit technology upgrades. Dave is also leading the Moving Forward Together plan, a multiple-year initiative to restructure Halifax's transit network. Dave has noted that Halifax Transit is expecting to transform its fleet of public transit buses and introduce fleet electrification by 2023.

Dave has a Master of Urban and Rural Planning degree from Dalhousie, as well as a Bachelor of Commerce degree from Saint Mary's University. A member of the Canadian Institute of Planners (CIP) and a Licensed Professional Planner (LPP). In 2012, Dave was named one of Mass Transit Magazine's Top 40 Under 40 transit professionals in North America.

Laurent Chevrot

Vice Chair (Integrated Mobility) of the Executive Committee,
Canadian Urban Transit Association (CUTA)
Directeur stratégies et expérience client, Réseau de transport de Longueuil



Mr. Laurent Chevrot has been the Director of Strategies and Customer Engagement at Réseau de transport de Longueuil since September 2017.

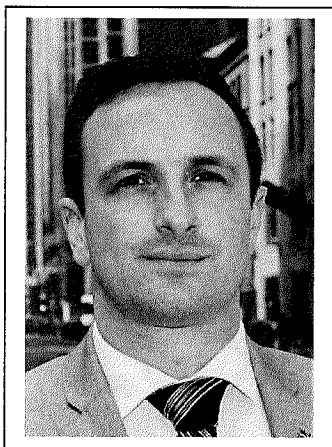
Laurent has extensive experience in the Canadian transit sector. Prior to assuming this role, he was the Director of Innovation, Marketing, and Partnerships at RTL Longueuil for seven years. He also held senior roles for Société de transport de Sherbrooke, including the position of Deputy Director General, and as a Director for the Centre de mobilité durable de Sherbrooke.

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Marco D'Angelo

President & CEO, Canadian Urban Transit Association (CUTA)



Mr. Marco D'Angelo was appointed as the CEO of the Canadian Urban Transit Association (CUTA) in June 2018.

Marco previously worked as the Executive Director of the Ontario Traffic Council (OTC) for ten years, where he oversaw that organization's mandate to enhance the engineering, education and enforcement of the traffic management sector in Ontario. Prior to this, he was employed at CUTA as the Director of Public Affairs and Communications between 2003 and 2006.

Marco holds a MBA from the University of Montréal, and a bachelor degree in Political Science and Law from Carleton University.

Wendy Reuter

Vice President (Member Value), Canadian Urban Transit Association (CUTA)



Ms. Wendy Reuter is currently the Vice President of Member Value at the Canadian Urban Transit Association (CUTA).

Wendy leads CUTA's work on integrated urban mobility, infrastructure, autonomous vehicles, greening and resiliency.

She chairs the National Research Council's Automotive and Surface Transportation Advisory Board, and is a member of the Board of Directors of the Ontario Public Transportation Association, Transport Canada's Surface Transportation Roundtable, and TAC's Urban Transportation Council.

Wendy holds a MBA from the Richard Ivey School of Business (University of Western Ontario), is a graduate from UC Berkeley's executive course on digital transformation, and has a bachelor degree in Economics from the University of Toronto.



Transit as a solution to the climate crisis

Written submission for the pre-budget consultations in advance of Budget 2020

Canadian Urban Transit Association

August 2, 2019

The Canadian Urban Transit Association (CUTA) is pleased to submit the following pre-budget recommendations to the House of Commons Standing Committee on Finance for Budget 2020.

1. That the government add an additional \$250 million top-up to the federal Gas Tax Fund, and dedicate this funding to public transit operational expenses. This will provide transit systems with the flexibility to improve the frequency and reliability of service, which in turn will lead to increased ridership growth and reduced GHG emissions.
2. That the government eliminate the trade-off that transit systems currently face between larger or greener fleets by introducing a voucher program in which the federal government would offset the capital costs of transitioning to low-carbon vehicles.
3. That the government support green jobs in Canada by securing an exemption for Canadian transit manufacturers and suppliers from *Buy America Act* procurement restrictions in the United States.



Executive summary

Public transit is the most effective and affordable way to move large numbers of people through limited space in busy urban centres across Canada. The people-moving capacity of buses, light-rail trains and subways vastly exceeds that of single-occupancy vehicles. The same is also true of transit's ability to reduce greenhouse gas (GHG) emissions in the transportation sector. By increasing modal share and implementing measures to tackle congestion, the federal government can reduce the number of passenger cars that get stuck in traffic on a daily basis, and the resulting emissions from idling engines.

To limit global warming to 2°C, the share of low-emission final energy use in the transportation sector on the international stage will have to rise from less than 5% in 2020 to about 35–65% by 2050¹. The GHG emissions attributed to public transit are being lowered as our industry embraces new technologies and transitions to alternative fuels. Transit systems are building new infrastructure and developing new routes that will ensure more accessible and frequent service for millions of Canadians. When taken together, the greening of transit operations coupled with a service that acts as a viable alternative to passenger cars are jointly supporting Canadian efforts to meet our international climate obligations. However, more can be done.

CUTA believes that substantial reductions in GHG emissions can be accomplished via dedicated federal funding for transit operations. This funding would be permanent and would be provided to municipalities through a modest increase in the federal Gas Tax Fund of \$250 million per year. It would also be flexible enough to cover operational expenses that fall under state of good repair, fuel and operator costs. These expenses routinely figure as amongst the highest budget lines for transit systems in Canada. With modest federal investments in transit operations, the government could incentivize increased ridership, and in doing so capture the environmental and social benefits of more transit use. CUTA estimates that a commuter choosing to take a diesel bus instead of their car can cut their GHG emissions per kilometer by about 77%.

CUTA believes that the federal government can act as a catalyst in the transition to greener transit fleets by providing financial incentives to municipalities to cover a portion of the incremental costs of upgrading vehicles from diesel to low-carbon alternatives. Such a move would also help commercialize cutting-edge green technologies here in Canada. While similar incentive programs exist for the purchase of zero-emission cars, there are currently no such incentives for mass transit vehicles such as buses. For example, for every 1,000 e-buses introduced, demand for fuel drops by over 180,000 barrels per year², which is the equivalent of reducing 77,400 metric tonnes of carbon emissions.

Lastly, the transit manufacturing industry, which includes parts and component suppliers and bus, railcar and other rolling stock manufacturers, are key creators of green jobs in Canada. In order to sustain these jobs, manufacturers and suppliers need the federal government's support to tackle protectionist trade policies abroad. Buy America procurement restrictions are a significant irritant at present, and the federal government should secure an exemption to these rules in the transportation sector.

¹ United Nations, IPCC Report (2018) Summary for Policymakers C.2.4 (p.15)

https://www.ipcc.ch/site/assets/uploads/sites/2/2019/05/SR15_SPM_version_report_LR.pdf

² Clean Energy Canada "Will Canada miss the bus?" March 2019 (p.10) http://cleanenergycanada.org/wp-content/uploads/2019/03/Report_TER2019_Ebuses.pdf



1. \$250M Towards Dedicated Transit Operational Funding

Recommendation: That the government add an additional \$250 million top-up to the federal Gas Tax Fund, and dedicate this funding to public transit operational expenses. This will provide transit systems with the flexibility to improve the frequency and reliability of service, which in turn will lead to increased ridership growth and reduced GHG emissions.

According to CUTA's *Ridership Trends Study* (2018)³, the primary factors that influence transit ridership growth are improvements in service levels and a reduction in the associated costs of using transit (i.e. fares, convenience and travel time). By increasing the Gas Tax Fund by an additional \$250 million, transit systems will be provided with the flexibility to improve the reliability and frequency of their service. This will lead to increased ridership growth and reduced GHG emissions. Operational funding will also support the federal government in meeting its target to increase the modal share of public transit and active transportation by at least 25%.

Our ridership trends report also found that for every 10% increase in the operating budgets of transit systems, a 5.5% increase in vehicle service hours is expected. In addition, for every 10% increase in predicted vehicle service hours, a 10% increase in ridership is expected. CUTA estimates that an injection of \$250 million in operational funding could induce a 1.67% increase in ridership growth in a single year. This could reduce GHG emissions by the equivalent of removing 50,000 cars off our roads.

Increased ridership drives a modal shift from passenger cars to public transit. A commuter choosing to take a diesel bus instead of their car can cut their GHG emissions per kilometer by about 77%. Ontario's *Gas Tax Funds for Public Transit Program* is a successful model that delivers the needed flexibility for operational expenses that are currently not being served by the federal Gas Tax Fund. Internal CUTA research suggests that the average number of passengers in a vehicle commuting to work is 1.08 people per vehicle, while the average number of people traveling in a public transit vehicle in an average service hour is 41.15. The resulting savings in carbon emissions of moving more people in less space are immense.

In addition to increasing the reliability and frequency of transit services, complementary pricing policies that affect the cost of owning and using a private vehicle increase transit ridership as well. According to a recent report from the Parliamentary Budget Officer, Canada will have to increase the carbon price to \$102/tonne by 2030 to meet our international climate change commitments⁴. Investing in operational funding can be a complementary policy to Canada's existing carbon price, or an alternative to further increases. Within the policy context of increasing the marginal costs of driving a vehicle, we can facilitate behavioral changes towards sustainable mobility by reducing the marginal costs of taking transit by making it more frequent, reliable and affordable.

³ CUTA "Canadian Transit Ridership Trends Study" (2018) (p.88)

http://cutaactu.ca/sites/default/files/cuta_ridership_report_final_october_2018_en.pdf

⁴ Parliamentary Budget Officer "Closing the Gap: Carbon Pricing for the Paris Target" (2019) https://www.pbo-dpb.gc.ca/web/default/files/Documents/Reports/2019/Paris_Target/Paris_Target_EN.pdf



2. Low-Carbon Transit Vehicle Procurement Program

Recommendation: That the government eliminate the trade-off that transit systems currently face between larger or greener fleets by introducing a voucher program in which the federal government would offset the capital costs of transitioning to low-carbon vehicles.

Canada's transit industry is a world leader in manufacturing low-carbon vehicles. Manufacturers such as New Flyer and Nova Bus are developing tomorrow's green buses today. Several Canadian cities have set targets to green their transit fleets by 2040, including Montreal and Toronto.

The problem that our industry currently faces is that battery-powered electric and other low-carbon technology vehicles can be up to twice the cost of regular diesel-powered buses. This means that transit systems are faced with the trade-off between purchasing more buses to make service more frequent, and purchasing fewer but greener buses that make service cleaner for the environment. However, the demand for clean technologies is growing, and the costs of these technologies are dropping as a result. Since transit investments have long lifecycles, purchasing decisions today will affect Canada's long-term ability to lower GHG emission reductions. They will also shape the R&D investments of the transit manufacturing industry. Therefore, it is important for the federal government to provide transit systems and manufacturers with the flexibility to move towards low-carbon transit services in the future by introducing the right procurement incentives today.

We propose to eliminate the trade-off that transit systems currently face between larger or greener fleets by introducing a voucher program that would have the federal government offset the capital costs of low-carbon vehicles by up to 80%. The program would involve the government curating a list of approved low-carbon public transit vehicles that meet specific standards. The government would provide a voucher for a pre-determined amount (i.e. up to 80% of total costs) to a registered dealer, which would be redeemable at the time of purchase. The cost of this program would decline over time, as the induced demand for low-carbon vehicles would accelerate innovation and reduce vehicle prices.

This 10-year program would run until 2030 when the costs of low-carbon buses are expected to reach parity with diesel alternatives. According to Bloomberg New Energy Finance, inducing demand for low-carbon vehicles like e-buses through low-carbon procurement policies could cut this cost-parity timeline in half⁵, and rapidly accelerate a shift to clean energy. Currently, the high capital cost of low-carbon vehicles can be offset over its lifecycle by operational savings on fuel costs. However, the up-front capital costs are currently prohibitive and at-odds with expectations of short-to-medium term increases in ridership growth. By reducing the capital costs of acquiring low-carbon vehicles for transit systems by 80%, these vehicles will benefit from low life-cycle annual operating costs⁶.

The cost of this program can be capped at whatever level the government wishes by limiting the number of vouchers that are distributed annually. The estimated annual program cost of covering 80% of the incremental capital expenses for replacing all 15,000 conventional diesel buses in Canada by 2040 runs to approximately \$600 million per year.

⁵ Bloomberg New Energy Finance "Electric Buses in Cities; Driving Towards Cleaner Air and Lower Co2" March 2018 <https://data.bloomberglp.com/professional/sites/24/2018/05/Electric-Buses-in-Cities-Report-BNEF-C40-Citi.pdf>

⁶ Clean Energy Canada "Will Canada miss the bus?" March 2019 http://cleanenergycanada.org/wp-content/uploads/2019/03/Report_TER2019_Ebuses.pdf



3. Support Green Jobs in Transit Manufacturing

Recommendation: That the government support green jobs in Canada by securing an exemption for Canadian transit manufacturers and suppliers from *Buy America Act* procurement restrictions in the United States.

The transit manufacturing and supply industries are important creators of green jobs. In order to sustain these jobs, manufacturers need the federal government to help secure fair access to foreign markets. In this light, Canada must secure an exemption to *Buy America Act* procurement restrictions in the transportation sector that require up to 75% U.S. manufactured content.

The *Buy America Act* governs the procurement of transportation assets such as buses, trains and other rolling stock. The U.S. government has incrementally raised the American content requirement from 60% to 75%⁷. These rules could force leading Canadian transit manufacturers to expand their U.S. manufacturing footprints at the expense of homegrown expansion. There are recent examples that point to hundreds of job losses in transit manufacturing plants due to unfavourable business conditions abroad. Canadian bus manufacturers service 70% of the U.S. bus market in terms of annual sales. Canada should build on this comparative advantage and further grow its transit supply chain base. We cannot allow this industry of the future to deteriorate and relocate to other countries.

⁷ CBC News, Trump makes Buy America Rules More Restrictive, Demanding 75% US Components, Published July 15, 2019
<https://www.cbc.ca/news/business/buy-america-trump-rules-1.5212420>



CUTA Zero-Emission Bus Member Survey – Summary & Analysis



FEBRUARY 12, 2020

Canadian Urban Transit Association

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Executive summary

The federal government has set a target to increase the number of zero-emission vehicles in the public transit industry. Commitments were included in the mandate letter provided to the federal Minister of Infrastructure and Communities, the Honourable Catherine McKenna, on December 13, 2019 to:

- Introduce new funding to help school boards and municipalities purchase 5,000 zero-emission school and transit buses over the next five years, and;
- Ensure that new federal investments in public transit are used to support zero-emission buses and rail systems starting in 2023 and work with municipalities to address any exceptional circumstances.

Additional federal commitments were made to support the development and manufacturing of zero-emission technologies in the mandate letter provided to the Minister of Finance, the Honourable Bill Morneau.

Bus manufacturers and component suppliers that are members of CUTA are already producing innovative new zero-emission buses (ZEBs) and technologies. Our transit system members are at different stages in their preparations for zero-emission fleets.

To support the federal government's policy objectives, and to assist Infrastructure Canada in the development of policy programs to meet these objectives, CUTA conducted a survey of its transit system members and private transportation operators in January 2020 to gauge their readiness for the transition to zero-emission fleets. 53 transit systems and private operators responded to CUTA's ZEB survey. The transit system respondents account for 87.4% of CUTA's total ridership (2018).

This report provides a summary and analysis of CUTA's ZEB survey responses. Key findings from our survey include:

- Between 2020 and 2024, survey respondents plan on procuring 5,610 total new buses.
- Of this total, survey respondents would plan to procure 2,045 battery-electric buses (BEB), and 1,416 hybrid-electric buses (HEB) if funding for rolling stock and associated charging infrastructure was made available.
- Between 2025 and 2029, survey respondents plan on procuring 6,400 total new buses.
- Of this total, survey respondents would plan to procure 5,535 BEBs and 224 HEBs if funding for rolling stock and associated charging infrastructure was made available.
- The larger the transit system, the more likely it is to be better prepared to transition to zero-emission fleets, with the smallest systems being largely unprepared.

CUTA is developing policy and funding recommendations based on what our survey found. We will share these recommendations with Infrastructure Canada and other relevant departments to help support the federal government's efforts to meet its zero-emission fleet targets.



1. Survey responses

More than half of CUTA's members - 53 out of 104 systems – participated in our survey. The larger the transit system, the more likely it was to respond. Participants account for 87.4% of CUTA's total 2018 ridership.

The survey respondents form a regionally representative sample of CUTA members.

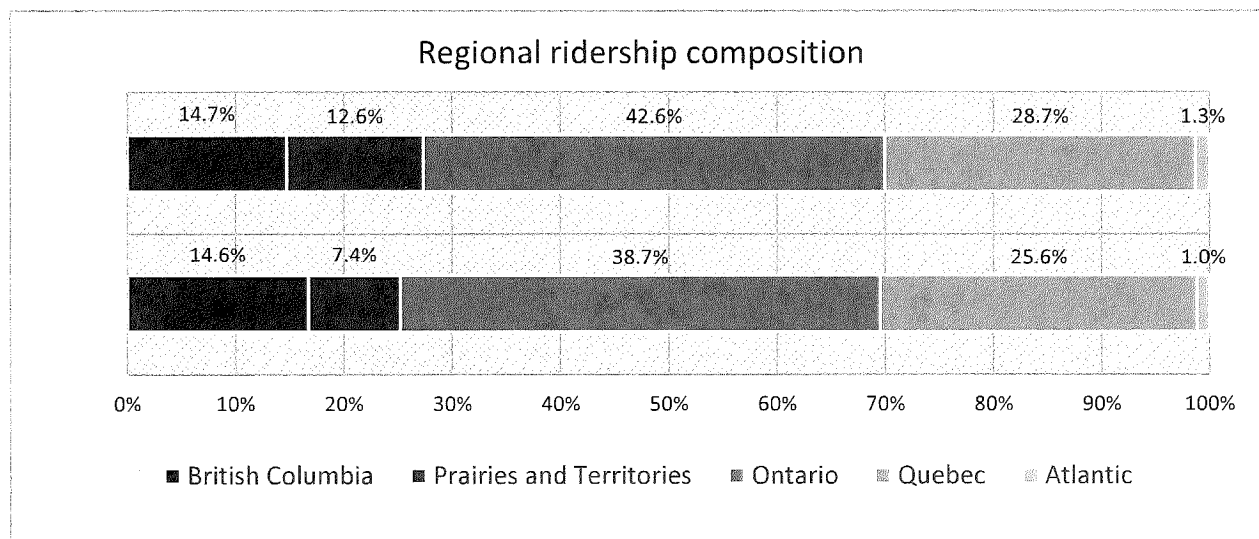


Figure 1

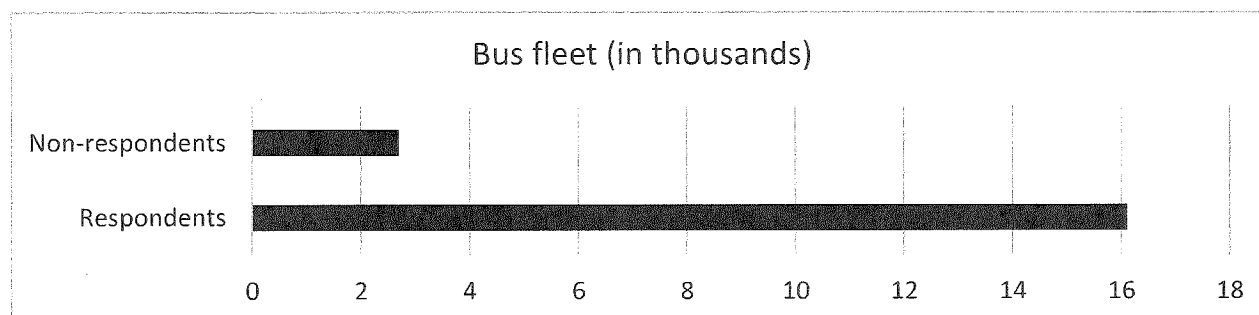


Figure 2

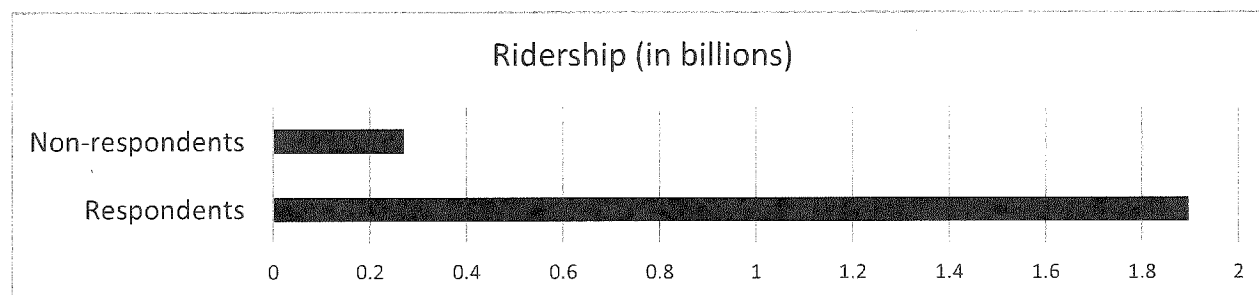


Figure 3



Overall

More than half of transit systems (59%) surveyed, have concrete or partial plans to buy ZEBs between 2022 and 2026. This distinction between a 'concrete' and 'partial' plan was whether the transit system had set a date to procure ZEB's-only. This indicates that the transit industry is aware of the need to transition to zero-emission fleets, and the majority are moving in that direction.

However, 41% have no plans at all, and the smaller the system the more likely it is to be included in this category.

All respondents are included in this report, which provides insight on the level of readiness in Canada to move to zero-emission fleets.

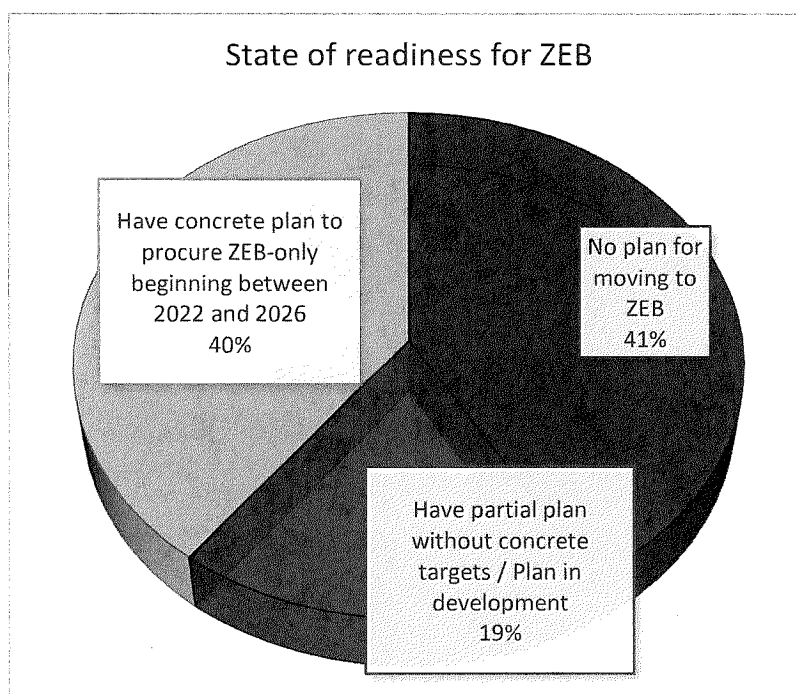


Figure 4

** The time frame of 2022-2026 in figure 4 represents the period in which some respondents indicated that they would begin ZEB-only procurement for their fleets.*



By transit system size

83% of respondents have green fleet strategies or plans in development. Large transit systems have a mix of targets based on start dates and outcomes, while medium-sized systems tend to have long-term targets based on outcomes. Small transit systems are the largest group of respondents, but only 37% of these systems are working towards a green fleet strategy, indicating barriers that these systems face such as cost and expertise gaps.

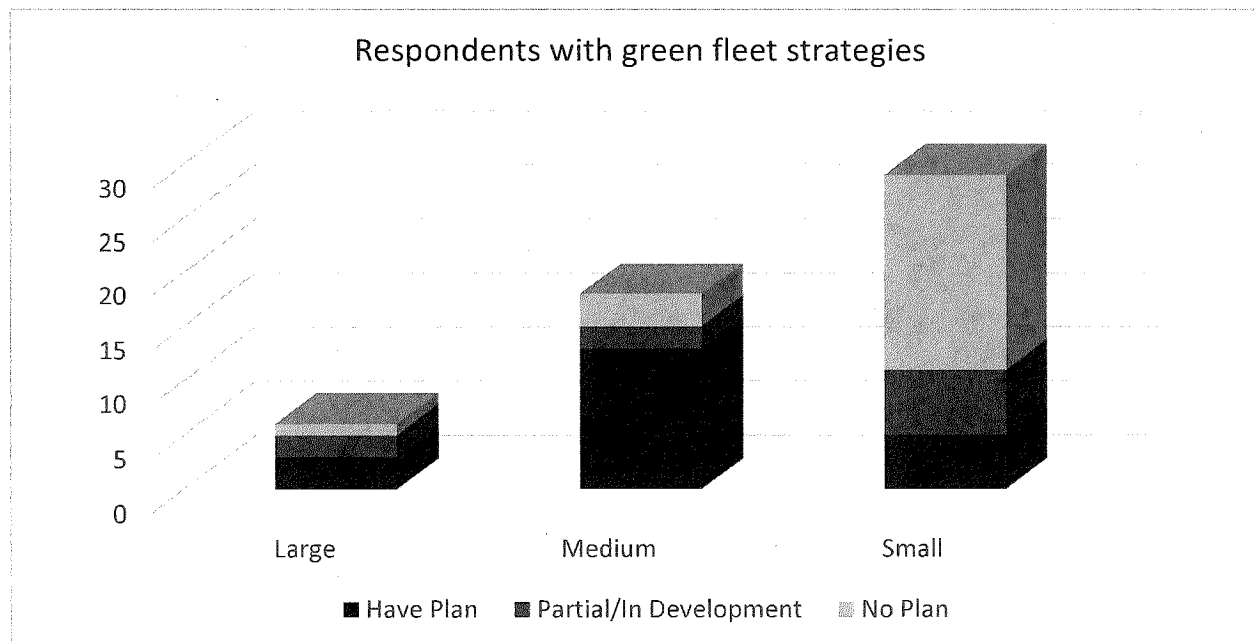


Figure 5



3. Procurement of battery electric and hybrid buses 2020-2029

CUTA transit system members were asked how many total buses they intend to procure between 2020-2024 and 2025-2029. They were then asked how many of these buses would be battery electric buses (BEBs) and/or hybrid electric buses (HEBs) if the government provided funding for rolling stock and associated charging infrastructure.

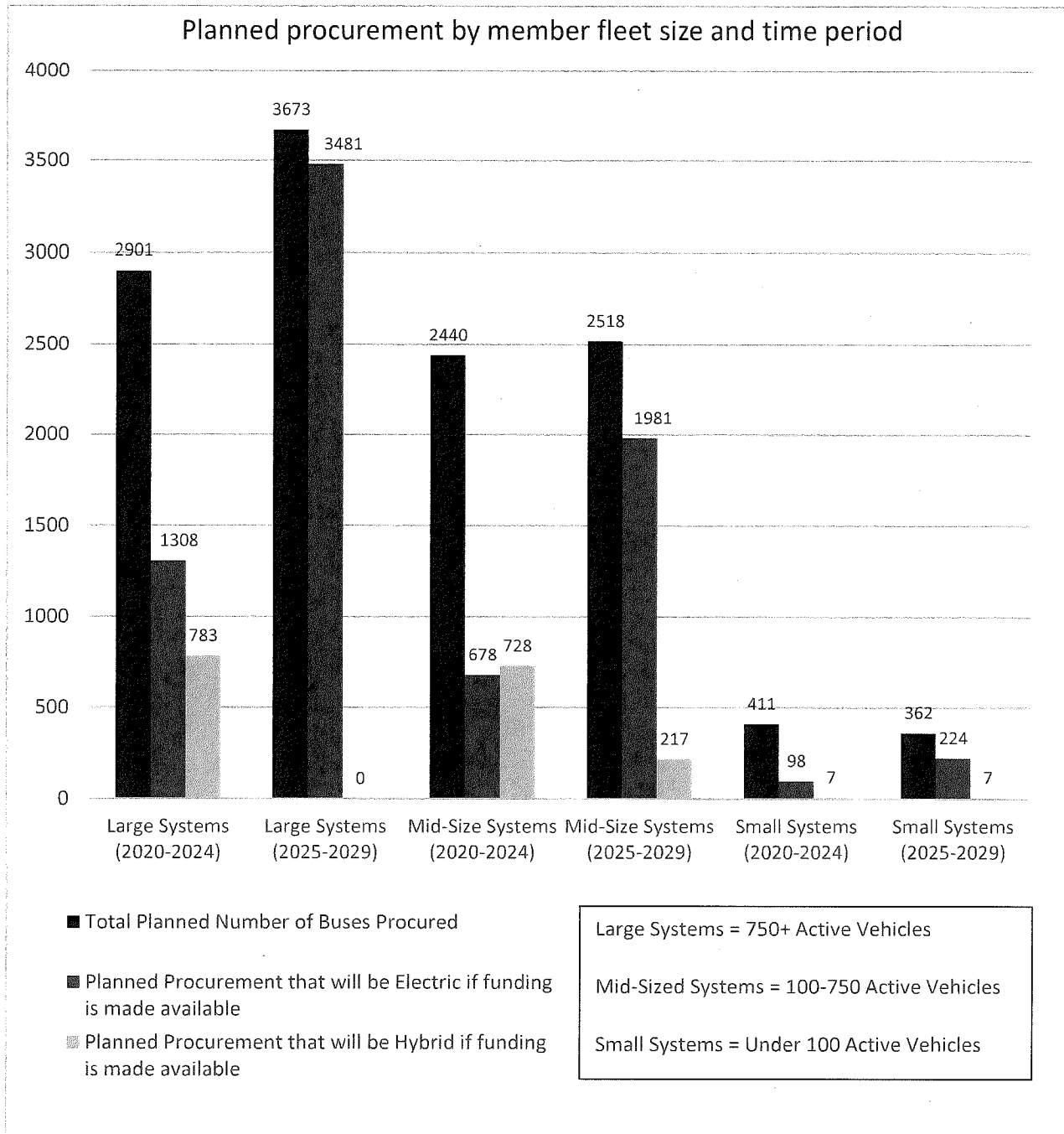


Figure 6



Observations

A clear pattern emerges in Figure 6 when factoring in a transit system's size to its planned procurement. Large-sized systems, with more than 750 vehicles, have more resources available and tend to have more ambitious political mandates to green their fleets. Should the necessary funding be made available, they are prepared to procure zero-emission buses for about 45% of new purchases over the next five years. Between 2025-2029, this rises to 95% ZEB procurements.

The medium-sized category are systems with between 100 to 750 vehicles. Their responses show a large gap between current total planned procurement and the procurement of ZEBs, even when taking into consideration the new federal government target to prioritize funding for ZEB procurement as of 2023. This indicates that the additional cost differential for ZEBs and charging infrastructure is a significant barrier for mid-sized transit systems. This fact was further substantiated in the qualitative survey responses. Mid-sized cities have less resources than larger ones and may have less ambitious political targets towards ZEV fleets. At present, mid-sized transit systems are using or plan to use ICIP Public Transit Stream funding to procure buses for fleet renewal and expansion. If these systems were required in future to fund electric charging infrastructure for new ZEBs via ICIP, they would not have the funding necessary to continue to expand their fleets.

The survey responses for the third fleet size, which represents CUTA's smallest transit systems, shows that a very small number of their planned procurement is ZEB-focused, even if funding was made available. There may be larger hurdles for these systems regarding the lack of expertise on ZEB route planning and maintenance, the costs associated with feasibility studies for switching to electric and information gaps in terms of what electrification will mean for transit operations in smaller communities. Many members reported that staff retraining would be needed to learn how to plan/dispatch electric routes, as well as service the maintenance of charging stations. These systems will also face a considerable barrier to electrification as their overall budgets are small. As a result, the costs of ZEB procurement and the additional costs of charging infrastructure and facility refits could be prohibitive.

An unexpected trend amongst all fleet sizes is the relatively small and declining role of hybrid technology, even given funding availability. This is likely due to hybrid buses being more expensive than battery electric buses. Based on CUTA's 2018 data, the average price of a HEB is \$1,005,106, while a battery-electric model comes to \$923,590.

Digging deeper:

Some estimates¹ point towards cost parity between battery-electric and diesel buses over the next ten years as battery prices fall. This timeline could be cut in half owing to government-induced demand. The price of a battery-electric bus at present is just under double the cost of a diesel bus. Battery electric buses will remain more expensive to procure than diesel equivalents for the near future. As a result, large transit systems will feel cost pressures when it comes to procuring zero-emission buses over the next five years, which is also the time frame in which the federal government wants to procure 5,000 ZEBs. This does not take into consideration the high costs of charging infrastructure, transit facility refits and the necessary training of route planning and maintenance personnel.

¹ Bloomberg NEF (2018) "Electric Buses in Cities Driving Towards Cleaner Air and Lower CO2" (p.30)



4. Obstacles to electrification

CUTA transit system members were asked to identify barriers to plans for battery electric and hybrid electric bus fleets

Overall

Members identified several problems in making the switch to ZEB fleets. By far, the largest was cost. Others cited technological concerns over the range of ZEBs, as well as issues such as current infrastructure being unable to support ZEBs due to grid capacity. Some systems also have a standing commitment to compressed natural gas (CNG) fleets. Many also identified a gap in knowledge and expertise around ZEB fleets. There's a need for maintenance and fleet staff to be trained on how to maintain charging infrastructure, and route planners who need training on the functioning of ZEBs in on-road conditions.

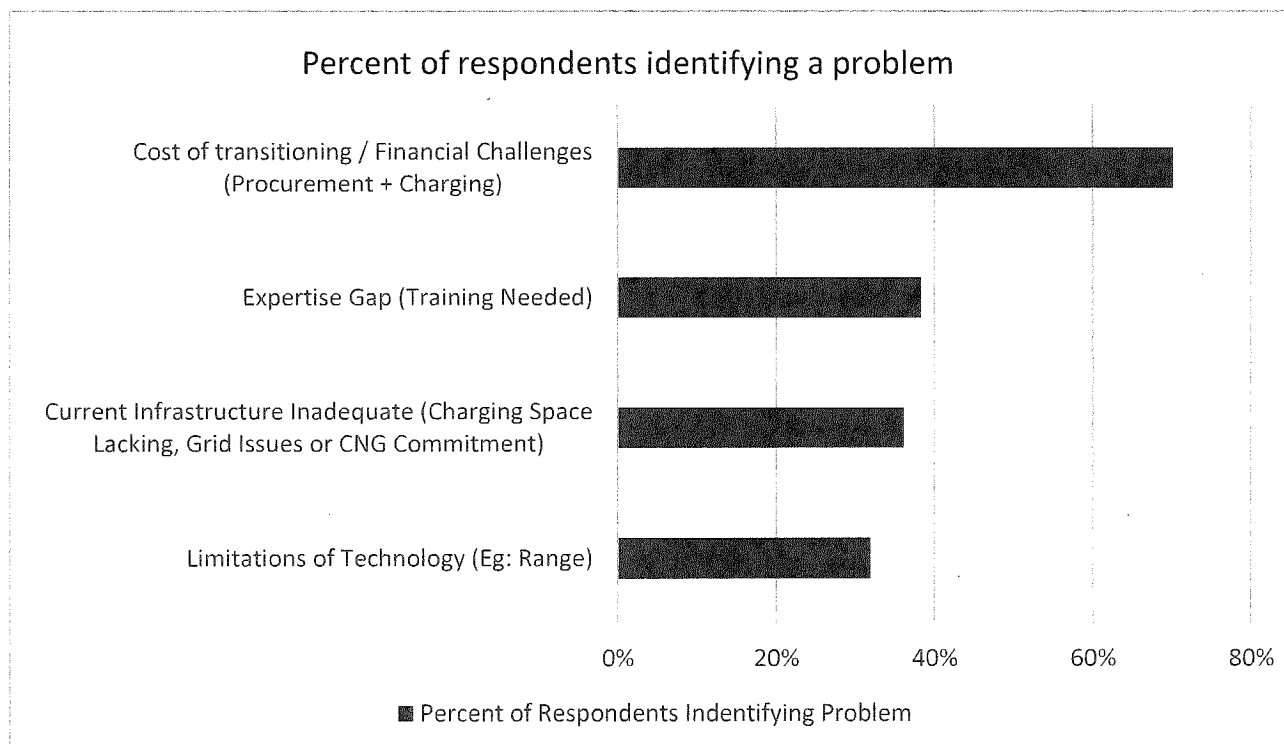


Figure 7



By transit system size – selected quotes

CUTA members were asked to identify the largest obstacles for their future procurement of electric and hybrid buses. Here's what they said:

Large transit system

"There are a lot of unknowns right now regarding the (ZEB) scope required and the charging options that are available. We need greater clarity on the infrastructure upgrades required to support both initial deployments in the near term and to support much greater deployments of electric buses in the years leading up to 2030. Utility power, onsite power distribution, backup power systems, chargers, and IT hardware are all major infrastructure items. It is expected that infrastructure costs will be very significant to support these large deployments, for which funding will need to be secured. The concern is that if large incremental funding is not made fully available, this will greatly constrain the future deployments of electric buses. We need some certainty of this funding and we need to make the facilities ready in advance of deployments."

Medium-sized transit system

"Determining funding and installing charging infrastructure for better electric buses. Capital cost premiums for alternative fuel vehicles which reduces the number of buses that can be purchased with static funding sources (e.g. Ontario Gas Tax). Future proofing investments against technology advancements (e.g. buy now or wait for battery range improvements). Training and tooling for staff to maintain the vehicles."

Small transit system

"On electrical infrastructure, the knowledge and expertise to design and build the required electrical infrastructure to manage power from the grid, store power, build redundancy, etc. Also, the incremental capital cost of electrical infrastructure and buses. The lack of physical space to install electrical equipment, transformers, charging depots (or overhead chargers), energy storage, back-up generators. On energy management expertise and experience, challenges related to the management of consumption and storage of electricity to optimize charging and ensuring the electrical regulatory pricing environment encourages adoption of electric bus fleets."



Status of charging infrastructure

CUTA transit system members were asked to identify if they had any charging infrastructure in place, including on a pilot basis.

Overall

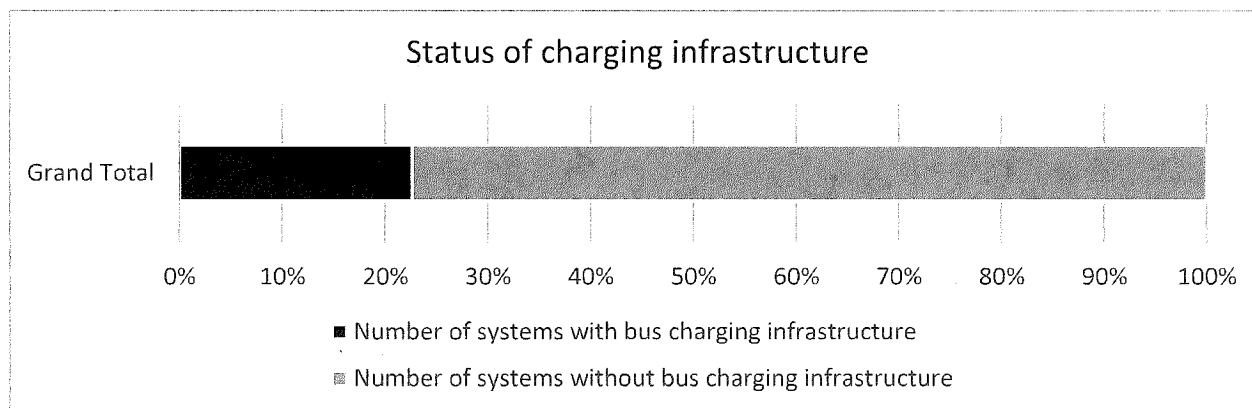


Figure 8

By transit system size

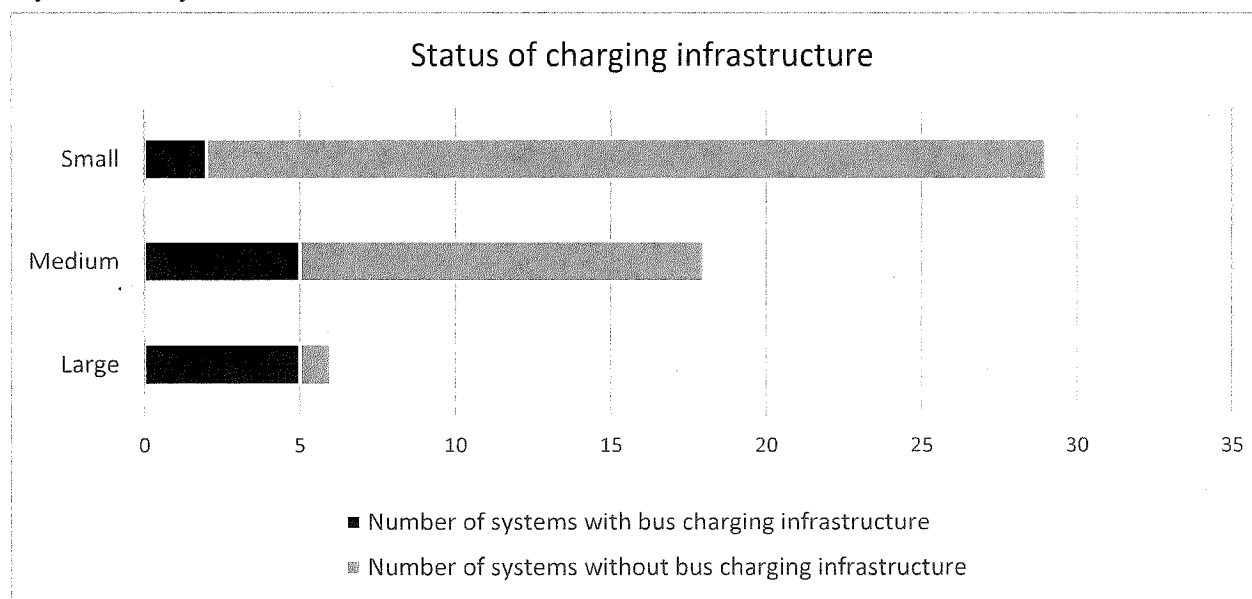


Figure 9



5. Status of discussions with local utilities

CUTA transit system members were asked how advanced their discussions were with their local electric utility provider on the costs of powering their future electric fleet.

Overall

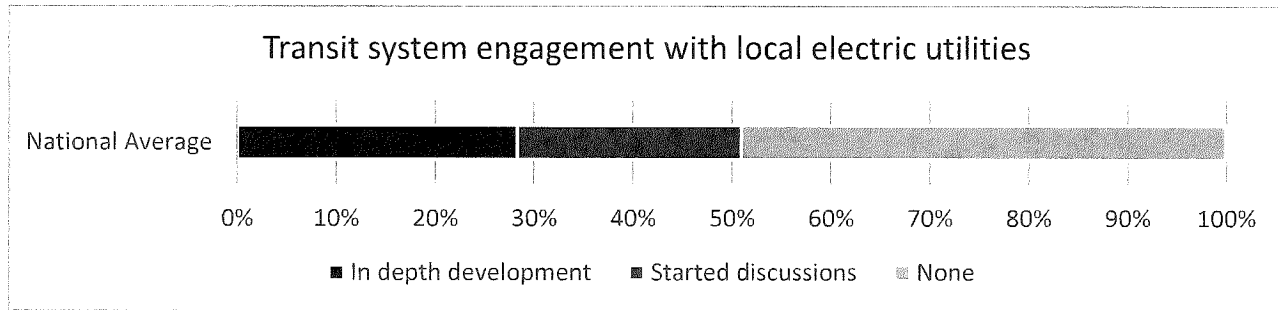


Figure 10

By transit system size

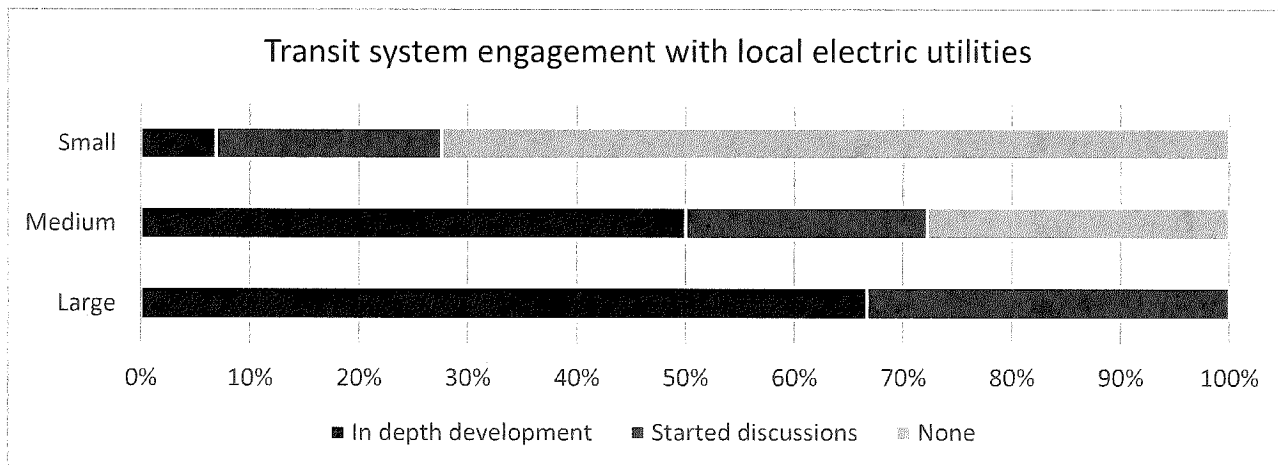


Figure 11



6. Federal government assistance

CUTA transit system members were asked how federal government funding would support their shift towards a zero-emission fleet. Members were asked to estimate the cost considering the following factors:

- Charging infrastructure
- Facility refits
- Costs associated with power utilities and access to the grid
- Maintenance costs
- Considerations linked to route planning and the range of zero-emission buses.

By transit system size – selected examples

Here are some estimates of costs related to moving to zero-emission infrastructure from transit systems across the country:

Large transit system

Charging Infrastructure: - new power feeds to depots is \$1M/km from nearest transmission station
Facility Installations: - switch gear, step down transformers, sub-station is \$20M-\$25M/depot - chargers are \$200k/each; can likely do a 2:1 ratio of bus to charger"

"Charging infrastructure – Subsidy for purchases of Level 2 (& Super-chargers) for EV and even more for high-power chargers which go into the transit garage. For EV chargers, subsidy of \$10K per charger and for HEV chargers a subsidy of \$500K per charger.

Medium-sized transit system

Facility expansion - \$1,000,000 Transformer/power source - \$2,000,000 Facility rebuild - \$150,000,000 Conventional Bus Incremental cost- \$180,000,000 Chargers - \$60,000,000 Access-A-bus fleet incremental costs - \$13,800,000 AAB infrastructure - \$690,000"

"Bus premium is \$300-500K per bus, Infrastructure is \$100K per bus or \$15-20M per garage.

Small transit system

Capital support is always welcomed as is a long-term, predictable funding envelope. Our challenges are locally and provincially where there is no desire/support to incentivize alternatively-powered vehicles. Without that support, this would be a futile battle."

"Retrofitting the facility with solar panels \$1,650,000. Charging stations at terminals estimated at \$125,000 per station. Maintenance costs, training, route changes - Costs unknown at this time.



7. System state of readiness

CUTA members were asked about their perceived state of readiness of transitioning to ZEB fleets.

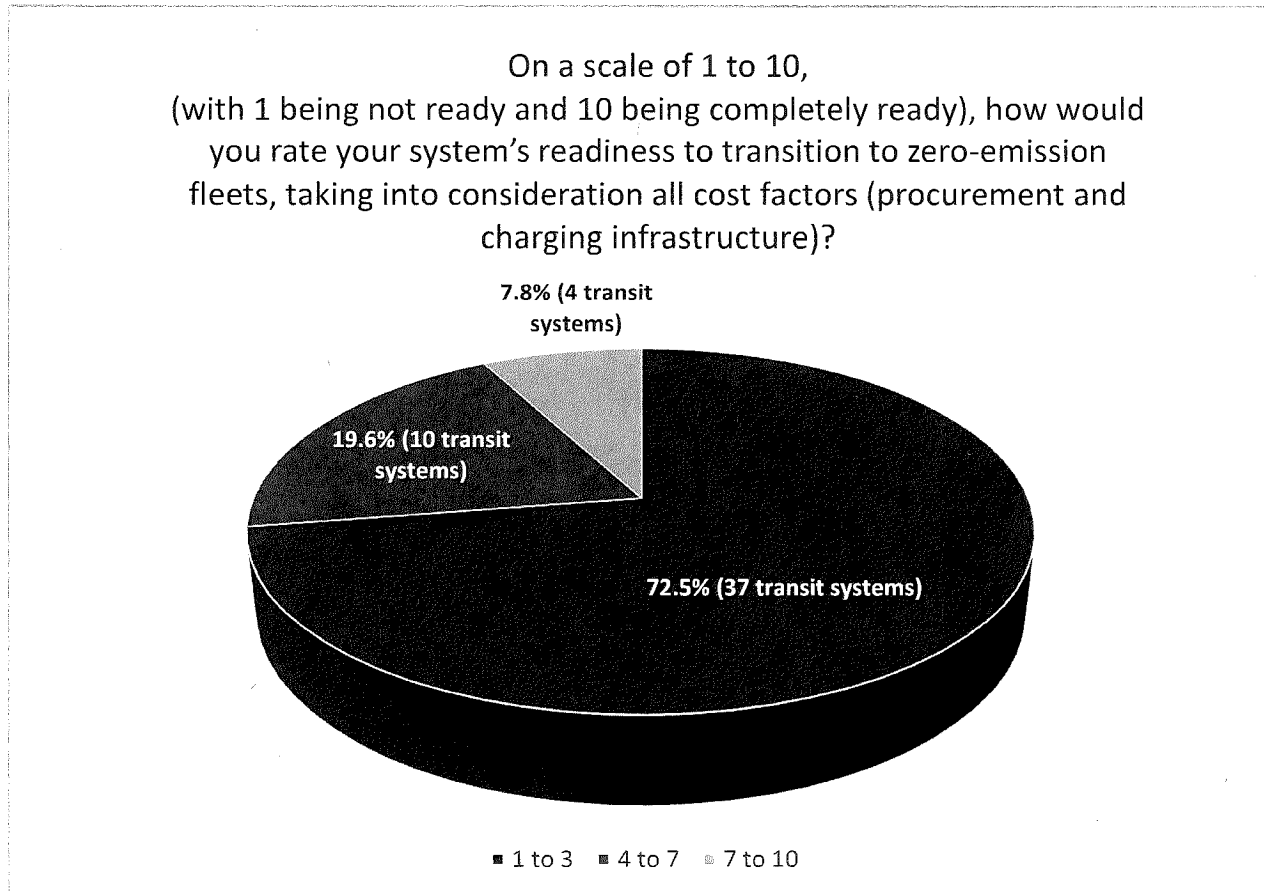


Figure 12

* Some respondents did not answer this question.

Observations

Without federal funding support, over 72% of survey respondents feel very unprepared to shoulder the costs of transitioning to zero-emission fleets on their own based on existing funding programs.



8. Next steps

CUTA will develop policy and funding recommendations based on the results of our survey findings. We will share these recommendations with Infrastructure Canada and other relevant departments to help the federal government achieve its zero-emission fleet targets.



GLOSSARY

Large Transit System – Operating >750 buses

Medium Transit System – Operating 100-750 buses

Small Transit System – Operating < 100 buses

BEB – Battery-Electric Bus

HEB – Hybrid-Electric Bus

HyEB – Hydrogen-Electric Bus

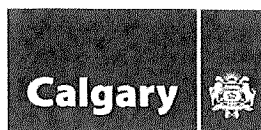
ZEB – Zero-Electric Bus, ZEB includes BEB, HEB, HyEB

APPENDIX A: CURRENT BUS FLEET TECHNOLOGIES – (53 Survey Respondents)

Table from Question #3

Row Labels	Sum of Diesel	Sum of Hybrid	Sum of Pure Electric	Sum of CNG	Sum of Hydrogen
AB	1106	15	0	41	0
BC	1374	405	266	529	0
MB	665	0	0	0	0
NB	40	0	0	0	0
NS	413	0	0	0	0
ON	4593	935	66	137	0
QC	2660	949	6	0	3
SK	274	4	0	0	0
TE	13	0	0	0	0
Grand Total	11138	2308	338	707	3





2020 January 30

To: Gerard Peets
Assistant Deputy Minister – Infrastructure Canada

From: Doug Morgan
A/General Manager, Transportation

Re: Calgary Transit's Alternative Fuel Strategy

The City of Calgary has taken a financially and environmentally responsible approach to future bus fleet procurement. A comprehensive evaluation of the current state and emerging trends for various bus technologies was conducted, including Diesel, Compressed Natural Gas, Electric, Hybrid and Hydrogen fuels. The results of our analysis have shown that electric vehicles will form an important part of our medium to long-term alternative fuel strategy, though we are more focused on Compressed Natural Gas (CNG) at present. We respectfully request that you consider CNG bus fleets as eligible for federal funding in the short to medium term.

The City of Calgary is evaluating the right approach for phasing in electric buses into our fleet through a pilot (subject to grant approvals) based on operational, customer, environmental and financial considerations in addition to monitoring other agencies.

In the short to medium-term, The City of Calgary is primarily pursuing a CNG fleet operating with Renewable Natural Gas (RNG), supplemented with electric vehicles. We believe this approach will generate the highest value for money, while significantly reducing emissions, in the short, medium and long term.

The advantage of the primary RNG approach in the short- to medium-term term is that the initial capital investment is relatively minor, but the overall Green House Gas (GHG) reductions are comparable or superior to a full electric bus system in a well-to-wheel analysis. As an example of cost differentials:

Capital Costs

Bus Cost - Electric \$1.0-\$1.2 million per bus

Bus Cost – CNG/RNG \$650 thousand per bus

Operating Costs (UBC – Clean Energy Research Centre)

	Diesel	CNG	70% RNG Blend	Battery-Electric 2017	Battery-Electric 2037
GHG Emissions [CO2e kg/km]	1.854	1.544	0.810	1.534	0.810
Reduction vs. Diesel [%]		17%	56%	17%	56%
Total Cost of Ownership [\$ /km]	2.18	2.06	2.13	2.29	2.29
Reduction vs. Diesel [%]		6%	2%	-5%	-5%

Source: UBC CERC Analysis using GHGenius

A comprehensive well-to-wheel analysis is necessary when developing a fleet procurement plan. This entails examining the environmental implications of the power generation, "fuel" delivery, and the vehicle. Under the current system in Alberta, the generation of electricity for electric buses would be primarily coal-based and the overall GHG emissions related to power generation and vehicle movement far exceeds those of a natural gas bus using RNG. When power generation transitions to cleaner fuel (likely natural gas), likely to be completed by 2030, the well-to-wheel analysis still slightly favours an RNG solution because of losses in the process of electric power generation and power transmission.

Including funding for CNG buses, in addition to electric vehicles, as part of future federal funding will provide the highest return on investment in the short, medium and long term. The environmental benefits of this strategy not only improves the local Calgary environment but also the Alberta environment, since no new power generation is needed. The primary RNG strategy is also considerably more cost effective since the cost of a CNG bus is currently approximately 50 per cent that of a comparable electric model, and the energy/fuel cost is significantly less and considerably more stable.

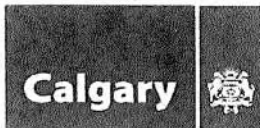
An assessment of cost of ownership with current technology trends shows that electric vehicles are unlikely to be cost-comparable with a natural gas-based solution at this stage; over the next 20 years, an electric bus solution would likely cost an extra \$840 million without a significant improvement in GHG levels compared to an RNG solution. It will still be important to introduce electric vehicles to supplement the primary transit fleet in the short to medium-term to further test the financial, operational and environmental implications as the technologies evolve. The City of Calgary is currently conducting detailed modelling work to better evaluate these considerations in the context of our current and planned transit network and service delivery.

	Diesel Solution	CNG Solution	Ebus Solution
Capital Investment			
Fleet Costs	552,500,000	552,500,000	1,020,000,000
Infrastructure Costs	0	20,000,000	110,000,000
Total Capital	552,500,000	572,500,000	1,130,000,000
Operating Cost			
Per Km	0.553	0.352	0.525
Per year	44,250	28,125	42,000
For Whole Fleet	37,612,500	23,906,250	35,700,000
Over Life	752,250,000	478,125,000	714,000,000
Total Cost Ownership	1,304,750,000	1,050,625,000	1,844,000,000

CNG is estimated to save approximately \$300 million over one lifecycle

Ebus is estimated to cost an additional \$500million more compared to Diesel over one lifecycle

Ebus is estimated to cost an additional \$840million more compared to CNG over one lifecycle



Given the strong environmental and financial benefits, we respectfully request that you consider CNG bus fleets as eligible for federal funding on a long-term basis. Electric bus fleets should still be part of the consideration for a long-term fleet plan and there are currently numerous pilot projects underway to test and refine the technology.

Given the need for sustainable transit fleet investments in the short and long-term, we are taking a thoughtful approach by pursuing a CNG/RNG solution while also evaluating electric technology investments in the longer term. In March of 2019, The City of Calgary opened North America's largest indoor compressed natural gas bus fueling complex that is LEED Gold certified, which was partially funded by the Province of Alberta. More details can be found at: <https://www.calgary.ca/Transportation/TI/Pages/Transit-projects/Stoney-CNG-Transit-Bus-Garage.aspx?redirect=/stoneybusgarage>

We would welcome the opportunity to meet with you and your team to discuss this issue further and develop a funding plan that benefits both the citizens of Calgary and Alberta. Please feel free to reach out directly to Russell Davies, Acting Director of Calgary Transit at Russell.davies@calgary.ca

Sincerely,

A black rectangular box redacting the signature of Doug Morgan.

Doug Morgan, P.Eng, MBA
A/General Manager, Transportation
T 403-268-5637

cc: Russell Davies, A/Director, Calgary Transit

Public Transit

Public projects approved under IICP, since Nov 2015

Data as of 2020-02-05

New

Region	Total Rolling Stock	Bus: Diesel / Bio-Diesel	Bus: Electric	Bus: Natural Gas	Bus: Hybrid Bus
AB	199	12	40		
BC	617	137	10	26	
MB	117				
NB	51				
NL	22				
NS	71	8	1		
NT	0				
NU	0				
ON	2174	127	125		
PE	18	6			
QC	1045	15	50		682
SK	92				
YT	7	5			
Total	4413	310	226	26	682

Rehabilitation

Region	Total Rolling Stock	Bus: Diesel / Bio-Diesel	Bus: Electric	Bus: Natural Gas	Bus: Hybrid Bus
AB	7				
BC	1171	1171			
MB	0				
NB	0				
NL	18				
NS	0				
NT	0				
NU	0				
ON	3027	18			24
PE	10				
QC	662		3		
SK	0				
YT	0				
Total	4895	1189	3		24

Bus: Other fuel type / Unspecified	Paratransit and Specialized Transit	Subway	Light Rail Car	Streetcars	Other public transit rolling stock
26	9		112		
241		203			
73	44				
43	8				
3	19				
46	16				
1618	304				
	12				
81	5	153		36	23
70	22				
2					
2203	439	356	112	36	23

Bus: Other fuel type / Unspecified	Paratransit and Specialized Transit	Subway	Light Rail Car	Streetcars	Other public transit rolling stock
7					
18					
2913	72				
10					
659					
3607	72				

Active Transportation

Public projects approved under IICP, since Nov 2015

Data as of 2020-02-05

Region, Program	Project Count	Total Eligible Costs	Program Contribution
Grand Total	122	\$3,018,322,938	\$1,239,023,293
AB	4	\$2,456,440,000	\$991,073,332
ICIP	2	\$2,371,400,000	\$948,560,000
PTIF	2	\$85,040,000	\$42,513,332
BC	1	\$4,000,000	\$2,000,000
PTIF	1	\$4,000,000	\$2,000,000
MB	6	\$19,185,000	\$9,503,333
PTIF	4	\$18,650,000	\$9,325,000
SCF	2	\$535,000	\$178,333
NB	1	\$7,236,260	\$3,618,130
PTIF	1	\$7,236,260	\$3,618,130
NL	2	\$276,585	\$138,293
PTIF	2	\$276,585	\$138,293
NS	2	\$25,122,844	\$12,561,422
ICIP	1	\$25,000,000	\$12,500,000
PTIF	1	\$122,844	\$61,422
ON	102	\$440,258,886	\$193,615,438
ICIP	7	\$263,786,729	\$105,514,692
PTIF	95	\$176,472,157	\$88,100,746
QC	4	\$65,803,362	\$26,513,345
ICIP	1	\$63,883,362	\$25,553,345
PTIF	3	\$1,920,000	\$960,000

Funding amounts relate to the full projects in question. Many projects are significant public transit investments which ha

Investments led to 244 km of new or rehabilitated active transportation paths, trails, and infrastructure

112.24 ICIP

132.42 Legacy & PTIF

244.66

ve active transportation as a component. It is impossible to split out the investment strictly on active transportation.

Active transportation Projects

Public projects approved under IICP, since Nov 2015

Data as of 2020-02-05

Based on Legacy and Phase 1 offline indicators, IICP indicators and standardized category:

"Active transportation" as a standardized category

Transit: Projects that support active transportation

Active Transportation; Bike and pedestrian lane or sidewalk as indicator in IICP

Project #	Program	Stream	Region	Location	Title (EN)	Total Eligible Cost	Program Contribution	Approval Date	Announcement Date	Ultimate Recipient (EN)	Description (EN)
54396	ICIP	PTIS	ON	London, City of	Adelaide Street Underpass Active Transportation Connections	\$15,086,729	\$6,034,692	2019-08-22	2019-08-23	London, Corporation of the City of	<p>The Adelaide Street Underpass Active Transportation Connections Project (the Project), which is a component of the broader Adelaide Street Underpass Project, will construct four-metre multi-use paths on both sides of Adelaide Street which will run under a Canadian Pacific Rail (CPR) Bridge. It will also construct a cycling connection to the south of the underpass on Central Avenue and relocate a utility corridor, including watermain, storm water and wastewater pipes as well as a pumping station. The Project aligns with the City of London's Smart Moves 2030 Transportation, the City of London Plan, and has been identified as highest priority grade crossing in the city.</p> <p>Currently, Adelaide Street crosses two tracks at-grade directly adjacent to a CPR yard on the eastern side of the intersection. The crossing is frequently blocked by trains from the CPR yard, with a daily average of 20 road blockages that last about 4.6 minutes each. These blockages delay all users of the corridor including pedestrians, cyclists and transit users.</p> <p>The Project will facilitate active transit that provides a first-mile/last-mile connection to bus stops on Adelaide street and to future bus rapid transit on Oxford Street.</p>
54418	ICIP	PTIS	ON	London, City of	Dundas Street Old East Village Streetscaping Improvements	\$8,200,000	\$3,280,000	2019-08-22	2019-08-23	London, Corporation of the City of	<p>The project consist of the widening of approximately 1.62 of roadway along Dundas St., the replacement of adjacent sidewalks, installation of approximately 0.81 kilometers of new dedicated cycling lanes with signalized intersections at Dundas St. & Lyle St./Elizabeth St. and Dundas St. & Rectory St., and installation of new bicycle parking & lock-up areas. The Project will enhance and revitalize the transport corridor in the area of Dundas street with improved direct pedestrian and cycling connections to Dundas Street bus stops and along connecting side streets to the future King Street rapid transit corridor. New street lighting will be installed along 0.87 kilometers of side streets connecting to the proposed rapid transit corridor and along the 1.62 kilometers of roadway. The project will facilitate active transit that provides a first mile/last mile connection to the public transit system by connecting Dundas Street bus stop and along connecting side street to the future King Street rapid transit corridor.</p>
54340	ICIP	PTIS	NS	Halifax, Regional Municipality of	Halifax Regional Center All Ages and Abilities Bikeway Network	\$25,000,000	\$12,500,000	2019-07-18	2019-07-29	Halifax, Regional Municipality of	<p>This project will include the buildout of Halifax's All Ages and Abilities (AAA) bikeway network. The project is a key part of Halifax's Integrated Mobility Plan (unanimously approved by the Council in 2017) and targets the completion of a 30km network of bicycle routes by 2022. The network consists of protected bike lanes, multi-use pathways and local street bikeways, with a focus on infrastructure in the downtown core. Construction in 2019 will result in approximately 6 km of AAA bicycle network and Multi-use pathways for pedestrians and cyclists. The project will include Downtown AAA Bikeway Network; Macdonald Bridge Bikeway Connectors Project; Africville Active Transportation Connectors; Dartmouth North Bicycle Corridor; West End and North End Local Street Bikeways; Midtown Bikeways; Dartmouth Harbourfront Greenway Completion.</p>
52396	PTIF	PTIF	ON	Toronto, City of	The Bentway Pedestrian Bridge	\$12,200,000	\$6,100,000	2018-03-27	2019-08-09	Toronto, City of	<p>This project will extend the Bentway project across Fort York Boulevard, east of Fort York National Historic Site; the bridge will enable the extension of the Bentway trail to Bathurst Street and points east; it will establish better and safer connections to transit at Bathurst Street/Fleet Street/Lake Shore Boulevard; the bridge will be suspended from the Gardiner Expressway. Project extended to 11/30/2019 as more time is required to finish the project [REDACTED]</p>
52000	PTIF	PTIF	QC	Laval, City/Town of	Gradual deployment - Electric bicycles	\$315,000	\$157,500	2018-03-29	2018-05-11	Société de transport de Laval (STL)	<p>Deployment of a fleet of 300 electric bicycles in Laval. This project consists in determining the sites of the 30 charging stations and supplying electricity to them.</p>
51973	PTIF	PTIF	ON	Lanark, County of	Resurfacing of the Ottawa Valley Recreation Trail	\$78,745	\$39,370	2018-03-27	2018-04-23	Lanark, County of	<p>Resurface 3.6 km of Ottawa Valley Recreational Trail (Active Transportation Route connected to Transit System) with Granular "M" from Waba Road to Needham Side Road.</p>
52393	PTIF	PTIF	ON	Toronto, City of	Toronto 360 Wayfinding	\$5,900,000	\$2,950,000	2018-03-27	2018-04-23	Toronto, City of	<p>Implementation of Toronto 360 Wayfinding across the city, including city-wide base mapping, targeted detailed mapping, on-street wayfinding sign location planning, map content development, and supply, delivery, installation and repair of on-street signs. Project extended to 03/31/2019 as more time is required to finish the project [REDACTED]</p>
52395	PTIF	PTIF	ON	Toronto, City of	Installation of Cycling Facilities on Lakeshore Blvd West	\$1,200,000	\$600,000	2018-03-27	2018-04-23	Toronto, City of	<p>"Construction of a protected bidirectional cycle track on Lake Shore Blvd West from Norris Crescent to First Street to fully connect the Waterfront Trail. Includes construction of accessible TTC Platforms and bicycle signals along the length of the 1.4km Cycle Track. Project extended to 03/31/2018 as more time is required to finish the project [REDACTED]</p>
52397	PTIF	PTIF	ON	Toronto, City of	Bentway Improvements	\$980,000	\$490,000	2018-03-27	2018-04-23	Toronto, City of	<p>Mainly an active transportation project that will focus on:</p> <ul style="list-style-type: none"> Wayfinding signs and markers High quality pathway connecting Strachan Avenue and Bentway Streetscape improvements to main roadway into Fort York National Historic site Lighting for pedestrian/cycling pathway, Strachan Avenue to Bathurst Street 3-way stop and related improvements for pedestrian/cycling connections Signalized pedestrian crossing and related improvements for pedestrian/cycling connections Post and ring units; multi racks <p>Project extended to 06/30/2019 as more time is required to finish the project [REDACTED]</p>

51857	PTIF	PTIF	ON	Bracebridge, Town of	Construction of : (12) Bus Stop Pads, (10) Bus Stop Bench Installations, (8) Bus Lay-By Installations	\$131,000	\$50,000	2017-11-24	2018-01-19	Bracebridge, Corporation of the Town of	Enhancement of transit bus stop locations, improving accessibility and safety of users of the public transit infrastructure through the construction of : (12) Bus Stop Pads, (10) Bus Stop Bench Installations, (8) Bus Lay-By Installations in various locations.
51858	PTIF	PTIF	ON	LaSalle, Town of	Installation of 95 bus stops (22 with shelters)	\$200,000	\$55,262	2017-11-24	2018-01-19	LaSalle, Town of	Installation of 95 bus stops, including concrete pads, shelters (22) and signage, to provide accessible, convenient and safe amenities for transit riders. Note, this project is part of a larger project for the expansion of the Windsor transit system into the Town of LaSalle. Although the nature of the project is an expansion of the Transit Windsor system, this system is new to the Town of LaSalle.
51841	PTIF	PTIF	QC	Montréal, City/Town of	Addition of 2 Bike Stations	\$1,535,000	\$767,500	2017-08-28	2017-12-15	Réseau de transport métropolitain (RTM)	Adding of 2 bike stations: 1 at the Ste-Thérèse site and 1 at the Terrebonne site in order to promote access for cyclists to public transit equipment. The project plans are to create 2 bike stations. This equipment would enable users to drop off their bicycles in a safe place out of the weather which would require a card to gain access to the station. Service quality would be greatly enhanced for cyclists, which might encourage public transit users to come to the stations by bicycle.
49978	PTIF	PTIF	ON	Ottawa, City of	Multi-Use Pathway (Ogilvie Road to St. Laurent Station)	\$200,000	\$100,000	2018-03-19	2017-11-17	Ottawa, City of	**Modified Project** Modifications made to title, description and location. See key notes for details Design, This pathway links St Laurent station to the retail/commercial district on the east side of St Laurent Boulevard with an improved connection for pedestrians and cyclists, in support of transit-oriented development around LRT stations. This pathway will also allow for an additional connection to Cyrville Station from the northeast.
51265	PTIF	PTIF	MB	Winnipeg, City of	Pedestrian and Cycling Bridges: Chief Peguis Trail	\$6,700,000	\$3,350,000	2017-06-12	2017-10-10	Winnipeg, City of	This project would widen the existing deck on the Kildonan Settlers Bridge (Bridge) and relocate existing traffic barriers on the south side of the Bridge to current accessibility standards that will accommodate pedestrians and cyclists. The project would connect the recently constructed Chief Peguis Trail Greenway, which was partially funded federally, to the North Winnipeg Parkway which connects to the Forks, closing a gap between these two prominent Winnipeg active transportation facilities. The project provides increased flexibility for people to access more transit routes and reduces people's trip time through trip chaining (i.e., stops on the way to a destination). Chief Peguis Trail connects two major north-south transit corridors on Main and Henderson (Route 77). Upgrading existing pedestrian facilities to current accessibility standards and providing dedicated bicycle facilities between Main and Henderson will enable people to walk or ride their bikes to either Main or Henderson and access the proposed transit bike locker system or attach their bike to the bus. This improved walking/cycling connection will also connect to future Park and Ride locations at both Main and Henderson intersections at Chief Peguis. The proposed corridor improvement area is adjacent to high density residential land use, with a high percentage of seniors who rely on transit for their main source of transportation.
51267	PTIF	PTIF	MB	Winnipeg, City of	Protected Bike Lanes: McDermot Avenue (phase 1)	\$1,450,000	\$725,000	2017-06-12	2017-10-10	Winnipeg, City of	The McDermot Avenue Phase 1 project, from Arlington Street to Kate Street, includes protected bike lanes, as well as street renewal. It involves renewals of the street and sidewalks around the University of Manitoba Bannatyne Campus, Cancer Care Manitoba and the Health Sciences Centre. It also improves street crossing for pedestrians and adds protected bike lanes. These improvements are supported by the Pedestrian and Cycling Strategies (policy). The bike lanes provide east-west bicycle connectivity to north-south transit routes. McDermot is currently a two-way street that runs through the Health Sciences Center and the U of M Bannatyne Campus that will be converted to a one-way street with a protected bicycle corridor. Phase 1 requires street renewal in order to incorporate the bike lanes because of the street condition, the reconfiguration of the road to one-way, and to accommodate revised drainage required as a result of the added barrier from the bike lane.
51296	PTIF	PTIF	MB	Winnipeg, City of	Protected Bike Lanes: McDermot Avenue/Bannatyne Avenue (Phase 2)	\$3,500,000	\$1,750,000	2017-06-12	2017-10-10	Winnipeg, City of	The McDermot Avenue/ Bannatyne Phase 2 project (Kate Street to Waterfront Drive) includes adjustable protected bike lanes and surface condition road improvements, and builds on the McDermot Avenue Phase 1 project. The project provides east-west bicycle connection for many north-south transit routes. It also improves street crossing for pedestrians and adds protected bike lanes. These improvements are supported by the Pedestrian and Cycling Strategies (policy). The project further connects people into a proposed downtown protected bike lane system. Phase 2 currently involves two adjacent one-way streets that have a more diverse adjacent land use, including Winnipeg's historical Exchange District. This phase includes 4 km of roadway, and given the magnitude, the proposed budget will be used entirely for the bike lane upgrades.
51298	PTIF	PTIF	MB	Winnipeg, City of	Protected Bike Lanes: Chevrier Boulevard and Waverley Pathway Connection	\$7,000,000	\$3,500,000	2017-06-12	2017-10-10	Winnipeg, City of	Chevrier Boulevard (Waverley Street to Pembina) and Waverley Pathway Extension (from Chevrier Boulevard to McGillivray Boulevard) project includes buffered bike lanes, street renewal and Pathway extension. The Project provides a protected bicycle connection from the Pembina Highway buffered bike lanes to the proposed Southwest Rapid Transit Corridor (SWRTC) Phase 2 transit stations. The project closes a gap on the Waverley bike spine and provides a protected bicycle connection from the Waverley bike spine to the SWRTC Phase 2 stations by including a new pathway along Waverley Street. Waverley Street currently has limited or no pedestrian facilities. Overall, the project serves to improve connectivity for both dense industrial employment areas and residential areas to the SWRTC Phase 2.
51618	SCF	SCF	MB	Selkirk, City of	Manitoba Ave. Pathway (#5)	\$475,000	\$158,333	2017-07-10	2017-08-09	Selkirk, City of	Construction of active transportation pathway on Manitoba Ave.
51628	SCF	SCF	MB	St. Francois Xavier, Rural Municipality of	Village Sidewalk Extension	\$60,000	\$20,000	2017-07-10	2017-08-09	St. Francois-Xavier, Rural Municipality of	Sidewalk Extension. Construction of sidewalk on the upslope of the provincial highways ditch - Sidewalk on East side 300m, and sidewalk on west side 100m for active transportation use i.e. walking or riding bikes
51280	PTIF	PTIF	QC	Trois-Rivières, City/Town of	Bike racks	\$70,000	\$35,000	2017-06-09	2017-07-07	Société de transport de Trois-Rivières (STTR)	This project involves installing 20 new bike racks so that the entire fleet is equipped. With the cost savings on the 20 bike racks, the STTR wants to replace 5 additional bike racks for the bus fleet. This is in the continuity of the project since the acquisition of bike racks is the same type as that provided for in the initial project. The addition of these 5 racks complements the need for the STTR and will allow the installation of a total of 25 new bike racks.
47909	PTIF	PTIF	ON	Thorold, City of	Sidewalk Extension for Transit at six (6) locations	\$150,000	\$75,000	2016-12-21	2017-03-31	Thorold, City of	Extending sidewalk from existing sidewalk to bus stop to allow accessible access to bus stops at six (6) locations for improved mobility/accessibility and customer service/security. Locations include: • Schmon Parkway from Niagara Region building to Merrittville Highway • Summers Drive @ Remigo Court • Schmon Parkway from Life Labs to Merrittville Highway • Ormond Street from St. David's Street to Regent Street • St. David's Road @ Tupper Drive (at bus stop) • St. David's Road from Tupper Drive to Collier Road

47954	PTIF	PTIF	ON	Leamington, Municipality of	Oak Street West Sidewalk Extension	\$130,000	\$65,000	2017-01-11	2017-03-31	Leamington, Municipality of	An 800m extension of sidewalk at the western limit of our transit system to satisfy an outstanding need to permit accessibility from business and homes to an existing bus stop at the extreme limit of the route.
48005	PTIF	PTIF	ON	Windsor, City of	Cycling-Transit Connection on South Cameron Blvd. - Totten to Northwood	\$335,000	\$167,500	2017-01-11	2017-03-31	Windsor, City of	Construction of cycling facilities to transit routes [Dominion / Campbell for access to Dominion 5 bus route]. The City of Windsor is requesting additional time to complete this project beyond the March 31, 2018 deadline. As a result of project design, Species at Risk were identified which requires additional permits through Ministry of Natural Resources and Forestry. Additional time is required to the work will be done in order to comply with the legislation.
48006	PTIF	PTIF	ON	Windsor, City of	Cycling-Transit Connection on Little River Blvd - Radcliffe to East City Limits	\$70,000	\$35,000	2017-01-11	2017-03-31	Windsor, City of	Construction of cycling facilities to transit routes [Cora Greenwood Dr / Little River Blvd for access to Transway 1A bus route]. Also provides regional connections to the Town of Tecumseh
48007	PTIF	PTIF	ON	Windsor, City of	Cycling-Transit Connection on Malden Road - Armada to South City Limits	\$500,000	\$250,000	2017-01-11	2017-03-31	Windsor, City of	Construction of cycling facilities to transit routes [Malden Rd / Todd Lane] for access to South Windsor 7 bus route]. Also provides regional connections to the Town of LaSalle. The City of Windsor is requesting additional time to complete this project beyond the March 31, 2018 deadline. As a result of project design, Species at Risk were identified which requires additional permits through Ministry of Natural Resources and Forestry. Additional time is required to the work will be done in order to comply with the legislation
48008	PTIF	PTIF	ON	Windsor, City of	Cycling-Transit Connection on Kamloops Street - Calderwood to the West Limit	\$69,030	\$34,515	2017-01-11	2017-03-31	Windsor, City of	Construction of cycling facilities to transit routes [Marentette Rd for access to South Windsor 7 bus route]. Balance of Kamloops Road Extension constructed through other sources.
48088	PTIF	PTIF	ON	Oakville, Town of	Construction of a Multi-Use Trail on North Service Road	\$800,000	\$400,000	2017-02-09	2017-03-31	Oakville, Town of	The construction of a multi-use trail on North Service Road from Third Line to just West of Fourth Line. The trail would provide an active transportation link to connect recently installed transit shelters throughout the corridor, as there is no existing pedestrian or cycling infrastructure. Project modification request extended to November 2018 as a result of the delay in federal/provincial approval timelines.
48089	PTIF	PTIF	ON	Oakville, Town of	Installation of Bike Lockers and Bike Racks at the Uptown Core Terminal and Bus Shelters	\$35,000	\$17,500	2018-03-27	2017-03-31	Oakville, Town of	The installation of bike lockers, a concrete pad, and one cycling repair unit at the Uptown Core Terminal would provide a secure option for transit users to store their bicycles while using transit service. Bike racks will also be installed at various bus shelters.
48104	PTIF	PTIF	ON	Burlington, City of	Elgin Promenade - Multi Use Pathway - Phase 2 (Elizabeth St. to John St.)	\$450,000	\$225,000	2017-02-09	2017-03-31	Burlington, City of	Downtown Burlington is identified as a Metrolinx Mobility Hub. The Elgin Promenade project will provide a safe, accessible connection from the east and west sides of the Downtown for Pedestrians and Cyclists to connect to the Downtown John Street Bus Terminal. Phase 1 (Pearl St. to Elizabeth St.) is included in the proposed 2017 Capital Budget. Phase 2 (Elizabeth St. to John St.) is not currently in the City's Capital Budget and subject to PTIF funding approval. If approved, Phase 2 work can commence in Summer 2017 along with Phase 1. The project will be complete by April 30, 2018 except for the bus shelters-manufacturers cannot keep up with the demand so there is an industry-wide backlog of bus shelters being produced.
48110	PTIF	PTIF	ON	Burlington, City of	Construction of Multi-Use Paths - Hydro Corridor	\$535,000	\$267,500	2017-02-09	2017-03-31	Burlington, City of	Paving of the existing gravel multi-use pathway as identified in the Council approved Cycling Master Plan will enable more active transportation in the city and enhance connections to existing Transit routes. An extension to September 28, 2018 is requested. This is to allow time to complete an archaeological study and a grounding study, as required by Hydro One, for approval prior to construction.
48111	PTIF	PTIF	ON	Burlington, City of	Elgin Promenade Multi Use Pathway - Phase 3 (John St. to Brant St.)	\$876,920	\$438,460	2017-02-09	2017-03-31	Burlington, City of	Downtown Burlington is identified as a Metrolinx Mobility Hub. The Elgin Promenade project will provide a safe, accessible connection from the east and west sides of the Downtown for Pedestrians and Cyclists to connect to the Downtown John Street Bus Terminal. Phase 3 (John St. to Brant St.) is an extension of the Phase 2 (Elizabeth St. to John St.) pathway and would not proceed unless approval was given for Phase 2 construction. Construction for Phase 3 could commence in Summer 2017 provided PTIF funding approval was granted for Phases 2 and 3. The project will be complete by April 30, 2018 except for the bus shelters-manufacturers cannot keep up with the demand so there is an industry-wide backlog of bus shelters being produced.
48131	PTIF	PTIF	ON	Hamilton, City of	Sustainable transportation/transit connections - sidewalks	\$3,025,000	\$1,512,500	2017-02-09	2017-03-31	Hamilton, City of	Rymal Road East is a major arterial currently serviced by route 44 and comprises a portion of the future 5-Line express bus route. Many sections of the road are still rural cross sections with no sidewalks or connections to transit stop landing pads. Project will consist of construction of approximately 8 Km of sidewalk and landing pads. Project Modification request to extend deadline to March 31, 2019 is required [REDACTED]
48144	PTIF	PTIF	ON	London, City of	Rehabilitation of Dundas Place	\$16,000,000	\$8,000,000	2017-07-10	2017-03-31	London, Corporation of the City of	***Modified Project*** See timeline history for original information. Dundas Place is the conversion of a portion of downtown Dundas Street from an auto oriented street into an active transportation friendly area that includes the reconfiguration of transit service routes/stops and relocation of the primary transit hub in the downtown. Project is being accelerated to help implement transit reorganization of routes and project scope requires an extension into year 3 due to magnitude of construction. Project completion date extended to March 31, 2019 [REDACTED]
48146	PTIF	PTIF	ON	London, City of	New Accessible Transit Pads and Sidewalks	\$2,000,000	\$1,000,000	2017-02-09	2017-03-31	London, Corporation of the City of	Construction of new transit pads and sidewalks (multiple City wide locations) to make local transit more accessible and functional. Project modification request to extend timeline to September 1, 2018 [REDACTED]
48147	PTIF	PTIF	ON	London, City of	Installation of 25 (minimum) New Pedestrian Crossings	\$690,000	\$345,000	2017-07-10	2017-03-31	London, Corporation of the City of	**Modified project** Modifications to title and description. See key notes for details. Construction of twenty five (minimum) pedestrian crossings to provide safer pedestrian road crossings and make public transit more accessible, crossing are compliant with the recent Ontario Traffic Manual Book 15 and Highway Traffic Act Amendments
48149	PTIF	PTIF	ON	London, City of	Kiwanis Park Pathway Connection	\$2,100,000	\$1,050,000	2017-02-09	2017-03-31	London, Corporation of the City of	Construction of an active transportation connection across the Canadian National Railway line that will improve neighbourhood connections to transit. (Provincial contribution funded through the Ontario Municipal Cycling Infrastructure Program). Project modification request to extend timeline to September 1, 2018 [REDACTED]
48150	PTIF	PTIF	ON	London, City of	Construct New Downtown Cycle Tracks	\$1,750,000	\$875,000	2017-07-10	2017-03-31	London, Corporation of the City of	**Modified project** Modifications to description and funding. See key notes for details. Construction of cycle tracks on Colborne Street to promote active transportation and improve connections to the transit system. This project is an important feature in London ON Bikes, the new Cycling Master Plan. The cycle track will integrate with the local transit services along the corridor. Project modification request to extend timeline to May 31, 2018 [REDACTED]
48151	PTIF	PTIF	ON	London, City of	Byron Baseline and Wonderland Road Sidewalk and Bicycle Facilities	\$1,750,000	\$875,000	2017-02-09	2017-03-31	London, Corporation of the City of	Bicycle facility and sidewalk construction along transit routes on Byron Baseline and Wonderland Road in coordination with other works.
48152	PTIF	PTIF	ON	London, City of	Separated Bicycle Lane Renewal	\$1,290,000	\$645,000	2017-02-09	2017-03-31	London, Corporation of the City of	Rehabilitation of the separated bicycle lanes on Wonderland Road, Fanshawe Park Road and Adelaide Street to provide improved active transportation links and road crossings to London's Transit Villages.

48153	PTIF	PTIF	ON	London, City of	Construct Bradley Avenue Extension Transit and Active Transportation Features	\$500,000	\$250,000	2017-02-09	2017-03-31	London, Corporation of the City of	Implementation new active transportation and transit stops on the Bradley Avenue Extension from Wonderland Road to Wharndcliffe Road, a new transportation corridor in Southwest London.
48154	PTIF	PTIF	ON	London, City of	Sidewalk and Bicycle Lane Improvements on the Field Marshall Wolseley Bridge	\$190,000	\$95,000	2017-02-09	2017-03-31	London, Corporation of the City of	Widening of the sidewalks and installation of bollard separation for the bicycle lanes on the bridge over the Canadian Pacific Railway line, providing better pedestrian accessibility along an existing transit route.
48155	PTIF	PTIF	ON	London, City of	Rehabilitate & Upgrade Blackfriars Bridge Active Transportation Components	\$1,500,000	\$750,000	2017-07-10	2017-03-31	London, Corporation of the City of	***Modified Project*** See timeline history and key notes for original information. Blackfriars Bridge provides an important active transportation connection across the Thames River but is currently partially closed. Rehabilitation of the Blackfriars Bridge sidewalk and creation of a new bicycle lane will improve the active transportation network and provide connectivity to nearby major transit corridors. Project completion date extended to March 28, 2019 [REDACTED]
48159	PTIF	PTIF	ON	London, City of	Install Bike Parking Facility (near downtown Bus Rapid Transit Station)	\$120,000	\$60,000	2018-03-19	2017-03-31	London, Corporation of the City of	***Modified Project*** See timeline history for original information. London does not currently have a secure or semi-secure bike parking facility in downtown London. Preliminary discussion and evaluation suggests between 2 and 4 bike parking facilities will be housed within a traditional vehicle parking facilities in or near downtown London. It is proposed to establish a Pilot Project Bike Parking Facility in a central downtown location. The proposed bike parking facility will be in very close proximity to a Bus Rapid Transit station and downtown businesses. The proposed facility will be locked with secure access, well lit and under camera surveillance. It will serve as a model to develop future integrated parking facilities and through operations, determine what is required for bike commuters, downtown residents and visitors. Project completion date extended to March 28, 2019 [REDACTED]
48304	PTIF	PTIF	ON	London, City of	Rehabilitation of Thames Valley Parkway (TVP), South Branch	\$1,000,000	\$500,000	2017-02-09	2017-03-31	London, Corporation of the City of	Rehabilitation & expansion of approx. 4.5km of south branch Thames Valley Parkway (TVP). The TVP is the backbone of London's 166km recreational pathway system and is an important component of the City's active transportation network. The TVP provides critical active transportation access to transit stops.
48305	PTIF	PTIF	ON	London, City of	Rehabilitation of Thames Valley Parkway (TVP), Main Branch	\$750,000	\$375,000	2017-02-09	2017-03-31	London, Corporation of the City of	Rehabilitation & expansion of approx. 1.5km of pathway and approx. 1km of interior park roads on the TVP Main Branch in Springbank and Greenway Park. The active transportation network in these parks sees over 400,000 user trips per year. The cycling networks connect to transit stops, encouraging cyclists from across the City to take transit. Project modification request to extend timeline to July 31, 2018 [REDACTED]
48306	PTIF	PTIF	ON	London, City of	Rehabilitation of 3 Pedestrian Bridges	\$600,000	\$300,000	2017-07-10	2017-03-31	London, Corporation of the City of	***Modified Project*** See timeline history for original information. Rehabilitation of three pedestrian bridge structures along the Stoney Creek Recreational Pathway System. This recreational pathway and associated bridges provide critical connections between London neighbourhoods and major destinations such as hospitals, the University of Western Ontario, the Thames Valley Parkway, and the City's transit network. Project completion date extended to September 28, 2018 [REDACTED]
48309	PTIF	PTIF	ON	London, City of	Bicycle Detection Improvements at 4 intersections	\$100,000	\$50,000	2017-02-09	2017-03-31	London, Corporation of the City of	The standard induction loop vehicle detection works well for automobiles but does not consistently detect bicycles. This project would upgrade four (4) intersections with improved bicycle detection thereby improving the City's cycling network and facilitating additional active transportation trips that connect cyclists to the City's transit network.
48315	PTIF	PTIF	ON	West Perth, Municipal	Improve Accessible Trail Approaches to the Specialized Transit Depot	\$27,598	\$13,799	2017-02-09	2017-03-31	West Perth, Municipality of	Rehabilitate approaches, to an engineered accessible standard, sidewalks to the Accessible Trail to ensure ease of access to the Specialized Transit Depot, accessible linkages and enhance active transportation
48330	PTIF	PTIF	ON	Port Colborne, City of	Restoration of the Internal trail system at Thomas A. Lanna Sports Complex (Vale Centre)	\$30,000	\$15,000	2017-02-09	2017-03-31	Port Colborne, City of	Upgrading of pedestrian/cycling trail system connecting the abutting neighbourhood to the Park, the Vale Centre, and the Sports Complex transit stop which is a direct link with the City and Regional Transit System routes.
48331	PTIF	PTIF	ON	Port Colborne, City of	Restoration of trail from Omer Ave to Weir Road	\$15,000	\$7,500	2017-02-09	2017-03-31	Port Colborne, City of	Upgrading of the existing pedestrian/cycling trail system to link to the abutting neighbourhoods to both the City and ultimately the Regional Transit system routes
48332	PTIF	PTIF	ON	Port Colborne, City of	Restoration of trail from Robin Hood Mill north to Dain City	\$20,000	\$10,000	2017-02-09	2017-03-31	Port Colborne, City of	Upgrading of pedestrian/cycling trail system to link the abutting neighbourhoods to both the City and ultimately the Regional Transit system route
48333	PTIF	PTIF	ON	Port Colborne, City of	Promenade Improvements on West St south of Clarence St	\$20,000	\$10,000	2017-02-09	2017-03-31	Port Colborne, City of	Upgrading of the existing pedestrian/cycling trail system to link the abutting neighbourhoods to the main transit stop at City Hall which is a direct link with both the City and the Regional Transit system route. [REDACTED]
48334	PTIF	PTIF	ON	Port Colborne, City of	Trail Entrance Point Improvements at various locations	\$30,000	\$15,000	2017-02-09	2017-03-31	Port Colborne, City of	Upgrading of pedestrian/cycling trail system, increasing the connection points and linking more neighbourhoods to both the City and Regional Transit system routes
48335	PTIF	PTIF	ON	Port Colborne, City of	Trail Signage Replacements/Improvements /new signage at various locations	\$30,000	\$15,000	2017-02-09	2017-03-31	Port Colborne, City of	Upgrading of pedestrian/cycling trail system safety, info and directional signage throughout the system access points and along trails, clarifying destinations, distances, routing, etc. Signage will highlight public transit connection links for both Community and Regional Transit Routes

49368	PTIF	PTIF	ON	Durham, Regional Municipality of	Construction of a cycling lane to support Highway 2 PULSE (Route 900) Bus Rapid Transit (BRT) Expansion between Galea Drive and Lake Ridge Road in Ajax	\$535,000	\$267,500	2017-07-10	2017-03-31	Durham, Regional Municipality of	<p>***Modified Project*** Modifications made to description and funding. See key notes for details.</p> <p>Project Outcomes and Objectives: The proposed project involves the construction of 1.8 kilometres of dedicated cycling infrastructure and supporting bus stop infrastructure, including bus bays, shelter pads and shelters, between Galea Drive and Lake Ridge Road on Durham Highway 2 in the Town of Ajax. This builds upon the already completed cycling-related Highway 2 Bus Rapid Transit projects in the Region of Durham through the Ontario/Metrolinx Quick Win program. Proposed work includes detailed design, construction, project management and area municipal coordination.</p> <p>Project Readiness: As part of the Ontario/Quick Win program the Highway 2 Transit Priority Measures Class Environmental Assessment (EA) study (durhambrt.ca) was completed in 2012. The preferred design for the bike lanes for this 1.8 km segment was confirmed as part of the project outcomes along Highway 2 in Ajax. The proposed project falls within the completed EA study area. In addition to having a completed EA, this project aligns with the Region of Durham's Cycling Plan and Transportation Master Plan update as a major cycling infrastructure projects for east/west connectivity in the Region.</p> <p>How the Project Fits with Strategic plan: This project builds towards the completion of the Bus Rapid Transit (BRT) system which will help ensure that Regional transportation infrastructure is functional, integrated, reliable and barrier-free. In addition, the cycling facility will support and encourage active living and healthy lifestyles to enhance the connectivity between our communities. As this segment is located in Ajax, the project also aligns with the Town's goals to improve sustainable transportation options including cycling as outlined in its 2015 Ajax Transportation Demand Management Plan. (Continues in key notes)</p>
49421	PTIF	PTIF	ON	Mississauga, City of	Etobicoke Creek Trail reconstruction - trail resurfacing, signage, trail markers and trail user-count technology	\$2,270,026	\$1,135,013	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Reconstruction of key trail system in the central East area of Mississauga providing north-south connections from Courtney Park Drive to south of Burnhamthorpe. Provides key trail connection to Transitway. Project modification request extended to March 31, 2019</p>
49422	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Garnetwood Park	\$304,947	\$152,473	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connections to major transit corridor along Burnhamthorpe Rd. Project modification request extended to March 31, 2019</p>
49423	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Huron Heights	\$233,130	\$116,565	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** Modifications to description and construction end date. See timeline history and key notes for details.</p> <p>Trail reconstruction of community park that provides key connection to transit route along Central Parkway Ave. Project modification request extended to March 31, 2019</p>
49424	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Pheasant Run Park	\$193,354	\$96,677	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connection to transit route along Glen Erin Dr. Project modification request extended to March 31, 2019</p>
49425	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Quenippenon Meadows Park	\$124,851	\$62,426	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connections to major transit corridor along Erin Centre Blvd. Project modification request extended to March 31, 2019</p>
49426	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Stonewood Park	\$111,593	\$55,796	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connection to transit route along Terragar Blvd. Project modification request extended to March 31, 2019</p>
49427	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Max Ward Park	\$191,144	\$95,572	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connection to transit route along Matheson Blvd. Project modification request extended to March 31, 2019</p>
49428	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - South Common Park	\$257,003	\$128,502	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connections to major transit hub along Erin Mills Parkway. Project modification request extended to March 31, 2019</p>
49429	PTIF	PTIF	ON	Mississauga, City of	Trail Reconstruction - Crawford Green Park	\$83,971	\$41,985	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Trail reconstruction of community park that provides key connections to major transit corridor along Eglinton Ave. Project modification request extended to March 31, 2019</p>
49430	PTIF	PTIF	ON	Mississauga, City of	Waterfront Trail Improvements and trail reconstruction - Signage, trail markers, trail user-count technology and minor trail reconstructions	\$492,831	\$246,415	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified project*** See timeline history for original information.</p> <p>Trail improvements and minor reconstruction of key east-west trail system in the south area of Mississauga. Trail extends from Oakville to Toronto along the waterfront and connects to the rail network and major transit hub located at Hurontario and Lakeshore. Project modification request extended to March 31, 2019</p>
49435	PTIF	PTIF	ON	Mississauga, City of	Construction of Multi-Use Trails along the Hanlan Water Project	\$658,480	\$329,240	2017-03-30	2017-03-31	Mississauga, City of	Construction of multi-use trails in conjunction with the Hanlan Water Project, thereby reducing the costs to establish new facilities to provide better cycling connections to the Transitway.
49439	PTIF	PTIF	ON	Mississauga, City of	New sidewalks to transit stations	\$637,238	\$318,619	2017-03-30	2017-03-31	Mississauga, City of	Construction of 1.8 km of new sidewalks in the Airport Corporate Centre to enable people to walk to / from 3 Transitway stations. Also includes new sidewalks to other transit facilities and popular locations for walking.
49440	PTIF	PTIF	ON	Mississauga, City of	Pedestrian & Cyclist Access to Mississauga's Transitway & GO Transit Stations	\$7,514,096	\$3,757,048	2017-07-10	2017-03-31	Mississauga, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>25 km of new multi-use trails, bike lanes and signed routes to encourage cycling and walking to Mississauga public transit stations. Includes improvements to existing multi-use trails and bike lanes and a marketing campaign to encourage active transportation to transit. Project modification request extended to March 31, 2019</p>

49513	PTIF	PTIF	ON	Waterloo, Regional Municipality of	Active Transportation Improvements	\$5,000,000	\$2,500,000	2017-03-10	2017-03-16	Waterloo, Regional Municipality of	This project relates to the design and implementation of pedestrian environment improvements (i.e. walkways, lighting improvements) at various Grand River Transit (GRT) locations. Those locations include the area adjacent to the David Johnston Research and Technology Park (ION Station), a connection between the Iron Horse and Spur Line Trails and various other access points between GRT stops and ION stations.
49498	PTIF	PTIF	ON	North Bay, City of	Installation of sidewalks for improved bus stop access.	\$114,000	\$57,000	2018-03-27	2017-03-14	North Bay, City of	<p>**Modified Project** Modifications to title, description and forecasted construction end date. See timeline history and key notes for details.</p> <p>"Install concrete sidewalks in various locations through the Community where transit routes currently exist. The presence of sidewalks in key locations throughout the Community will allow for the installation of bus shelters along the existing popular transit routes, address safety and accessibility concerns for riders using transit in the Community and allow for more effective snow removal so that pedestrians are able to safely access bus stops in the winter. Project modification request to December 31, 2018 as additional time is required to complete the project due to shorter construction seasons in northern Ontario. The sidewalk program is intended to add sidewalks in key locations in the Community to support access to transit stops. The City has prioritized the installations throughout the Community and is satisfied that we have been able to meet the objectives of the project with the reduced budget amount.</p> <p>We achieved our objective of extending a sidewalk on McKeown Avenue to connect to bus stops to improve accessibility and eliminate safety hazards. In addition sidewalks have been installed in additional locations to improve accessibility to bus routes."</p>
47778	PTIF	PTIF	ON	Brockville, City of	Active transportation - multi-use trail	\$500,000	\$174,908	2016-12-09	2017-02-10	Brockville, City of	Construction of a multi-use trail in the boulevard adjacent to transit routes (Provincial contribution through Ontario Municipal Cycling Infrastructure Program). The multi-use trail will form part of the Brock Trail, linking pedestrians and cyclists using the 10 kilometre active transportation facility with the transit system through transit stops at four locations.
48093	PTIF	PTIF	ON	Penetanguishene, Town of	Public Access Extension for Designated Bus Stops	\$100,000	\$50,000	2017-02-09	2017-02-10	Penetanguishene, Town of	The extension of the sidewalk from Lecarron Street to Brule Street which will provide an active transportation route for the public to safely access designated bus stops.
48114	PTIF	PTIF	ON	Greater Sudbury, City of	Kingsway Active Transportation Improvements	\$2,700,000	\$1,350,000	2017-02-09	2017-02-10	Greater Sudbury, City of	Improve the pedestrian facilities along the Kingsway from Silver Hills Drive to Kitchner Avenue. The Kingsway is a fully developed major commercial corridor with few pedestrian facilities along the north side, making it difficult for pedestrians to travel from transit stops to their destination. These improvements will make transit a more attractive mode of transportation for these destinations. Due to unforeseen delays in construction, an extension beyond March 31, 2018 is required.
48115	PTIF	PTIF	ON	Greater Sudbury, City of	Westmount Avenue Active Transportation Improvements	\$255,000	\$127,500	2017-02-09	2017-02-10	Greater Sudbury, City of	Connect the existing cycling facilities on Attlee Avenue to those proposed on Barry Downe Road. This will connect major transit routes with key destinations such as the New Sudbury Conservation Area, Junction Creek Waterway Park, Rotary Park and the Adanac Ski Hill. Due to unforeseen delays in construction, an extension beyond March 31, 2018 is required.
48117	PTIF	PTIF	ON	Greater Sudbury, City of	Paris/Notre Dame Active Transportation Improvements	\$735,000	\$367,500	2017-02-09	2017-02-10	Greater Sudbury, City of	Provide improvements to the cycling facilities on the Paris/Notre Dame corridor by removing obstacles, providing depressed curbs, and installing new cycling facilities. The Paris/Notre Dame corridor is one of two north-south routes in the south end of the City linking many destinations to transit routes.
48317	PTIF	PTIF	ON	Clarence-Rockland, Corporation of the City of	Enhancement of existing active transportation infrastructure (Paving pedestrian path)	\$22,700	\$11,350	2017-02-09	2017-02-10	Clarence-Rockland, Corporation of the City of	<p>The proposed project of paving the 230 meter pedestrian path from the residential neighbourhood to the bus shelter located at 687 Laurier Street is aimed to improve the public transportation users' accessibility, safety and convenience. With the path paved, it would ensure year round access as it will be able to be cleared of snow and salted in the winter months.</p> <p>The project's first step is to go to tender to receive bids from firms. The tender would strictly include the paving of the 230 meter pedestrian path. Once the project is allocated to a firm, the work would take approximately 5 days to complete.</p> <p>2015 statistics show that 10,010 riders were picked up at the 687 Laurier Street bus shelter over 232 days of transit, for an average of 43 users per day. The vast majority is said to use the pedestrian path during the spring, summer and fall months. The proposed project to do paving of a pathway will be delayed since the other project is delayed since it is only logical to do both projects at the same time to save on costs.</p>
47969	PTIF	PTIF	ON	Thunder Bay, City of	Windsor Street Active Living Corridor - Sidewalk Connection	\$206,500	\$103,250	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	Construction of a new continuous sidewalk that enhances an Active Living Corridor by providing safe, accessible, and separated pedestrian access to Transit. Request for extension up to June 30, 2018. An extension to the completion date is requested in order to allow contractors to complete final outside landscaping work limited by winter weather.
47970	PTIF	PTIF	ON	Thunder Bay, City of	Frederica Street Active Living Corridor - Sidewalk Connection	\$54,000	\$27,000	2017-07-10	2017-01-16	Thunder Bay, Corporation of the City of	<p>**Modified Project** Modification to project title and project address. Details in key notes.</p> <p>Construction of a new continuous sidewalk that enhances an Active Living Corridor by providing safe, accessible, and separated pedestrian access to Transit. Request for extension up to June 30, 2018. An extension to the completion date is requested in order to allow contractors to complete final outside landscaping work limited by winter weather.</p>
47971	PTIF	PTIF	ON	Thunder Bay, City of	Enhanced Pedestrian Walkway on Arthur St.	\$110,000	\$55,000	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	New sidewalk connection, including new tactile surface indicators, to public transit. The sidewalk will provide a seamless link between nearby businesses, places of employment, and residential areas.
47972	PTIF	PTIF	ON	Thunder Bay, City of	Construction of Pedestrian Crossover	\$100,000	\$50,000	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	New pedestrian crossover will provide improved access to Transit, enhanced active transportation network connectivity, and a safe and accessible crossing for residents.
47973	PTIF	PTIF	ON	Thunder Bay, City of	Construction of Pedestrian Crossover	\$50,000	\$25,000	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	New pedestrian crossover will provide improved access to Transit, enhanced active transportation network connectivity, and a safe and accessible crossing for residents.
47975	PTIF	PTIF	ON	Thunder Bay, City of	Wardrobe Active Transportation Trail	\$450,000	\$225,000	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	Construction of a new multi-use trail paralleling Wardrobe Avenue that provides fully-separated travel for cyclists and pedestrians that will enhance access to existing Transit routes and improves connections into the existing multi-use trail network. Request for extension up to June 30, 2018. An extension to the completion date is requested in order to complete final outside construction work that has been impacted by a limited construction season.
47976	PTIF	PTIF	ON	Thunder Bay, City of	Construction of New Bike Lane	\$110,000	\$55,000	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	Construction of a new bike lane that provides the maximum amount of vehicular separation based on the available right-of-way. As a point of connection to Transit routes, sidewalks and transit stops will also be improved. Request for extension up to March 31, 2019.
47977	PTIF	PTIF	ON	Thunder Bay, City of	Installation of New Bike Racks for Business	\$20,000	\$10,000	2017-01-11	2017-01-16	Thunder Bay, Corporation of the City of	The purchase of new bike racks that will be installed at transit hubs and stops, as well as provided to businesses, employers, and municipal site to enhance the availability of high-quality bike parking, promote and facilitate the use of public transit as an alternative to use of vehicles.
47824	PTIF	PTIF	AB	Airdrie, City of	Installation of cycling infrastructure (racks) to support active transportation for first/last mile to regional transit stops	\$40,000	\$13,332	2016-11-08	2016-12-03	Airdrie, City of	The project will include installation of concrete pads and cycling racks/lockers at strategic stops along Airdrie's fixed route network. In addition, the scope of this project will include the installation of bike racks on all Airdrie Transit vehicles to encourage multi-modal transportation options for our customers. It is anticipated this project will include 14 stops and 3 transit vehicles.
47499	PTIF	PTIF	AB	Calgary, City of	17th Avenue SE - BRT - Phase 2	\$85,000,000	\$42,500,000	2016-09-01	2016-09-01	Calgary, City of	This project includes the construction of two bridges for transit vehicles, pedestrians and cyclists. It also includes modifications to the intersections of 19 ST SE / Blackfoot Trail, 17 AV SE / 28 ST SE and 17 AVE SE / 26 ST SE, and a new BRT station adjacent to the Blackfoot Truck Stop.

47380	PTIF	PTIF	ON	Toronto, City of	Eglinton Connects Streetscape Improvements and Cycle Tracks	\$2,500,000	\$1,250,000	2018-03-27	2016-08-23	Toronto, City of	<p>*** revised project ***</p> <p>"100% detailed design of streetscape and cycle tracks along Eglinton Connects LRT project and construction of an 800 m segment of cycling facilities from Jane Street to Weston Road supporting multi-modal trips along this corridor. In total, the construction of this project is anticipated to cost approximately \$15 million per year for 10 years for a total of \$150 million, Along Eglinton Avenue from Weston Road to Brentcliffe Avenue (10.9 km)</p> <p>Scope reduction to \$2.5 million to encompass design only. Eglinton Connections construction cannot commence until LRT construction is substantially completed (2022).</p> <p>Design of facilities between Kennedy and Kingston, initially expected to be a separate PTIF project, will be incorporated into this project and will proceed with design only. Design and construction of the MUP between Jane and Weston will continue as originally planned. Project extended because the portion from Weston to Kennedy, cycling facilities between stations cannot be built until Metrolinx has completed their LRT station construction, proceeding with design only at this time."</p>
47382	PTIF	PTIF	ON	Toronto, City of	East Don Trail	\$22,500,000	\$11,250,000	2016-07-26	2016-08-23	Toronto, City of	<p>Key connection in multi-use trail network, joining existing East Don Trail, Gatineau Corridor Trail and Lower Don Trail system. Forms part of the Pan Am Path. Connection to Eglinton Crosstown LRT. Project to complete Phases 1 -3. Phase 1 is estimated to cost \$11 million, \$8.5 million of which is currently funded. Phase 2 is estimated to cost \$10 million. Phase 3 estimated to cost approximately \$5 million. Lower Don Trail - East Don Trail: 1.85 km; East Don Trail - Gatineau Hydro Corridor: 1.84 km (flyover distance)</p>
47384	PTIF	PTIF	ON	Toronto, City of	Bicycle parking at 49 TTC stations	\$980,000	\$490,000	2018-03-27	2016-08-23	Toronto, City of	<p>*** revised project***</p> <p>New and enhanced bike parking at 49 rapid transit stations supporting multi-modal trips. Scope increased to build add parking at 9 additional TTC stations. Date extension required to complete the increased project scope.</p>
47385	PTIF	PTIF	ON	Toronto, City of	Bike Share Toronto Expansion at 150 TTC stations	\$8,000,000	\$4,000,000	2018-03-27	2016-08-23	Toronto, City of	<p>"Expansion of Bike Share Toronto stations at 150 rapid transit stations. Scope increased to build a total of 150 new stations. Date extension required to complete the increased number of stations. "</p>
47386	PTIF	PTIF	ON	Toronto, City of	Flemington Park-Thorncliffe Park Neighbourhood Connections	\$5,000,000	\$2,500,000	2018-03-27	2016-08-23	Toronto, City of	<p>*** revised project ***</p> <p>"Neighbourhood connections to Eglinton Crosstown LRT. Projects include boulevard multi-use trails and/or cycle tracks in this high-density neighbourhood with the most New Canadians anywhere in Canada. A bridge, which would service both cyclists and pedestrians, is badly needed here to link the two sides of the Don Valley.</p> <p>Overall Scope has been increased from \$3 to \$5 million to include a Right-turn channel removal for at Deauville Lane and Grenoble Drive and a Trail connection to Trail system along Don Mills south of Gateway Blvd. Project extended due to delays in completing design"</p>
47389	PTIF	PTIF	ON	Toronto, City of	York University Cycling Connections	\$619,000	\$309,500	2018-03-27	2016-08-23	Toronto, City of	<p>*** revised project ***</p> <p>"Various cycling improvements near York University, which would improve cycling access to the Toronto - York Spadina Subway Extension. Scope adjusted to total of \$619k 1) remove cycling facilities from Canarctic because GO Station may not continue to be operated. 2) Removed the eastern section of Pond Road for the same reason. 3) Addition of a boulevard trail on Murraul Ross Parkway between Shoreham and Steeles and a Black Creek Trail connection from Shoreham road to improve cycling connections to new TYSSE subway stations.Project end date extended to reflect delays in design of original scope and time required to complete the additional scope."</p>
47412	PTIF	PTIF	ON	Ottawa, City of	Baseline Transit Corridor - Bayshore to Billings- Design	\$12,000,000	\$6,000,000	2016-08-19	2016-08-23	Ottawa, City of	<p>Design: The Baseline Bus Rapid Transit Corridor is a strategic transit project that will expand and connect Ottawa's existing and planned Transitway and Light Rail Transit (LRT) network, providing a "crosstown" transit corridor from Bayshore to Confederation Heights, without having to pass through the downtown. It connects to the City's Confederation Line at Bayshore, Baseline; and connects to the Trillium Line; as well as the Southeast Transitway. Along the 13.8 km route, the median transit facility will include 24 new bus stops to maximize the connectivity to the communities they serve. The project also includes 20 km of new concrete sidewalks, 3.2 km of multi-use pathways, 20 km of separated cycle tracks, and 1.5 km of shoulder bike lanes. Once constructed this arterial corridor will be a multi-modal "Complete Street". Today's 6,500 daily ridership is expected to grow to more than 10,000 riders a day by 2031, with additional capacity to enable continued travel growth into the future as the corridor redevelops and ridership flourishes. Efforts will be made to complete the work as quickly as is practicable but this is a large project with complex designs and multiple stakeholder engagement and approvals. It is anticipated the design effort could extend over the course of 2017, 2018 and into 2019 to bring to completion.</p>
47438	PTIF	PTIF	ON	Ottawa, City of	Booth Street Bike Track from Sir John A MacDonald to Albert	\$2,000,000	\$1,000,000	2017-07-10	2016-08-23	Ottawa, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Project modification request extended to 2019-03-31 to provide contractors the capacity to successfully complete all required work -- while the bike track will be functional by late 2018 the finishing work will be done after the winter season.</p> <p>Design and Construction; This project adds protected cycling facilities along a 390m section of Booth Street to provide cyclists with direct connectivity to the Pimisi LRT station. This design will also provide access from the Chaudière interprovincial crossing to the East West Bikeway, a key cycling link through Ottawa's downtown. The facility will feature a single direction raised bike track on each side of the roadway, and will run behind transit waiting areas near the station to minimize pedestrian/cycling conflicts.</p>
47439	PTIF	PTIF	ON	Ottawa, City of	Bicycle shelters at Transitway stations to encourage multimodal travel	\$150,000	\$75,000	2017-07-10	2016-08-23	Ottawa, City of	<p>***Modified Project*** See timeline history for original information.</p> <p>Project modification request extended to 2019-03-31 to provide contractors the capacity to effectively stage work around active transit stations and accomodate the long order lead-time for the new prefabricated shelters.</p> <p>Design and Construction; This project would allow for the installation of five additional covered bicycle parking facilities at stations across the OC Transpo rapid transit network. The covered parking that is currently provided has been very popular. Additional capacity would allow for more people to make part of their trip by bicycle and part by transit, and would further the City's efforts to encourage the use of bicycles for the "first and last mile".</p>

47440	PTIF	PTIF	ON	Ottawa, City of	Enclosed bicycle parking areas at Transitway stations to encourage multimodal travel	\$500,000	\$250,000	2017-07-10	2016-08-23	Ottawa, City of	***Modified Project*** See timeline history for original information. Project modification request extended to 2019-03-31 to provide contractors the capacity to effectively stage work around active transit stations. Design and Construction; This project would allow for the creation of fully-enclosed bicycle parking facilities at stations with park and ride lots or other stations where conditions would warrant. The covered parking that is currently provided at some stations has been very popular, but does not allow customers returning home and transferring to their bicycle to have the same quality of trip as customers who are returning home and transferring to their automobile. Fully-enclosed parking would keep rain and snow off bicycles and would further the City's efforts to encourage the use of bicycles for the "first and last mile".
47458	PTIF	PTIF	ON	Ottawa, City of	Cost sharing for improvements of cycling and pedestrian links at Ministry of Transportation Ontario (MTO) overpasses	\$2,000,000	\$1,000,000	2018-03-19	2016-08-23	Ottawa, City of	*** Modified Project Description*** See Key Note for additional info Design; The current design of urban highway overpasses and the linkages leading to them represent barriers to cyclists who will not use mixed road facilities, and are also considered unpleasant crossings by pedestrians. By improving the safety and comfort of these connections, active transportation rates will increase across major barriers such as the 417. The new design being explored places the crash barrier on the bridge crossings over the 417 between motor traffic and vulnerable road users (i.e. cyclists and pedestrians), incorporates improved crossings of highway ramps, and plans to connect these new facilities into the adjacent communities. The improved design treatment will be applied to several Highway 417 overpasses across the City, including the following locations. At the Maitland Ave overpass, the improved design will enhance cycling and pedestrian connections between the residences and businesses south of Highway 417 and transit service along Carling Ave. Similarly, at the Richmond Rd, Pinecrest Rd and Woodroffe Ave overpasses, the improved design will enhance cycling and pedestrian connections between the residences and businesses located south on both sides of Highway 417 and the future light rail transit stations on the north side of Highway 417. Extending completion timelines to March 2019 will allow both of the City's and Ministry's design projects to move forward in parallel and ensure necessary coordination with MTO throughout the anticipated design process.
47462	PTIF	PTIF	ON	Ottawa, City of	Rural cycling routes (misc locations)	\$4,050,000	\$2,025,000	2016-08-19	2016-08-23	Ottawa, City of	Planned works are complete and came in under budget. Project modification request to extend the funding deadline to 2019-03-31 to allow additional works within scope to be undertaken during 2018. Additional locations can be achieved within the original budget allocation. Design and Construction; The City of Ottawa covers 2,770 sq km- much of which is rural in nature, with rural cross-section of roadways. Many villages in the rural areas lack safe cycling facilities. This program is intended to add paved shoulders along rural roads, to improve cycling connectivity as guided by the Ottawa Cycling Plan's Spine Route network. Paved shoulders will be prioritized where they connect with LRT or BRT stations (esp. with Park and Rides) in the periphery of the network - allowing rural residents to take advantage of transit. Examples could include Old Montreal Road, which could (on addition of paved shoulders) provide cycling access to the Trim Rd. station for residents of Cumberland Village.
47463	PTIF	PTIF	ON	Ottawa, City of	Heron Road (Data Centre/Heron Station to Bank), EB and WB bike tracks	\$650,000	\$325,000	2018-03-27	2016-08-23	Ottawa, City of	*** Revised Project*** "Original project is design-only. Project modification request to expand project scope and extend the funding deadline to 2019-03-31 to allow the construction of a segment of the planned bike track during 2018. Re-scoped project can be achieved within the original budget allocation. Design and construction; This project will provide a design for protected cycling facilities along both sides of a 1.2km stretch of an arterial road and advance construction of the segments of the facility within the limits of an adjacent new development. It connects a planned cycling facility on Bank Street (Cross-Town Bikeway 5) to a cycling facility planned to be added as part of the Baseline Transit Intensive Corridor Project; ultimately providing a new 8.5km cycling facility (Cross-Town Bikeway route 7) where none exists today. This will provide a cycling connection from the Alta Vista residential area to the Trillium line, along a low-stress cycling route for those residents requiring N/S transit routes or a linkage to the Confederation line west-bound."
47464	PTIF	PTIF	ON	Ottawa, City of	Heron Rd (Colbert Pathway to east of Jefferson)- EB bike tracks only	\$550,000	\$275,000	2016-08-19	2016-08-23	Ottawa, City of	Design and Construction; This project will include the design and construction of 1km of protected bike track in the eastbound direction as well as the removal of bus bays as a Transit Priority measure. The facility provides improved cycling access to a community centre located along the facility. This will provide a comfortable cycling connection from Trillium Line (LRT), Baseline Transit Intensive Corridor, and Heron Station (Southwest Transitway) to the retail stores along Bank Street; a major destination in the area.
47465	PTIF	PTIF	ON	Ottawa, City of	Richmond Rd - south side sidewalk reconstruction around Croydon for cycle track	\$1,100,000	\$550,000	2017-07-10	2016-08-23	Ottawa, City of	*** Modified Project Description*** See Key Note and timeline history for additional info Project modification to return deadline to March 2018 because the project is nearing completion and the extension to 2019 is no longer required. Project modification request extended to 2019-03-31 to provide capacity to sufficiently accommodate project detail complexity related to intersection modifications. Design and Construction; This project would add an east-bound cycle track along Richmond Road from Forest Street to 150 m east of Assaly Road. The Richmond Rd. corridor is part of Cross-Town Bikeway #2, which connects the west-end to the downtown core. The central 12kms of this key cycling route will be 100% completed by 2018, and this project would improve the quality of the cycling facility even further to the west. This project improves cycling connectivity and quality of pedestrian facilities to Lincoln Fields Station (current BRT/future LRT) from residential communities to the west; bypassing Carling Avenue which has no cycling facilities. This improvement is located 900m from the station along a low-stress cycling route.
47466	PTIF	PTIF	ON	Ottawa, City of	Kanata North cycle link (Carling at March Rd)	\$800,000	\$400,000	2017-07-10	2016-08-23	Ottawa, City of	***Modified Project*** See timeline history for original information. Project modification request extended to 2019-03-31 to provide contractor capacity to sufficiently accommodate project detail complexity related to intersection modifications. Design and Construction; This project completes a missing link approximately 200m in length along existing cycling facilities near an intersection of two major arterial roads. The cycling link will provide improved cycling commuter access to the Kanata North employment area. This project improves cycling connectivity from Eagleson Rd. and Teron Transitway stations to the Kanata North employment node. This complements the existing peak period transit service in this high-tech employment area by providing an improved off-peak connectivity option (by bicycle) to the major transit routes. This is a companion project with Kanata North cycle link (Herzberg at March Rd.).

47467	PTIF	PTIF	ON	Ottawa, City of	Kanata North cycle link (Herzberg at March Rd)	\$1,050,000	\$525,000	2017-07-10	2016-08-23	Ottawa, City of	***Modified Project*** See timeline history for original information. Project modification request extended to 2019-03-31 to provide contractor capacity to sufficiently accomodate project detail complexity related to intersection modifications. Design and Construction; This project completes a missing link (approximately 260m in length) along existing cycling facilities near an intersection of two major arterial roads. The cycling link will provide improved cycling commuter access to the Kanata North employment area. This project improves cycling connectivity from Eagleson Rd. and Teron Transitway stations to the Kanata North employment node. This compliments the existing peak period transit service in this high-tech employment area by providing an improved off-peak connectivity option (by bicycle) to the major transit routes. This is a companion project with Kanata North cycle link (Carling at March Rd.).
47470	PTIF	PTIF	ON	Ottawa, City of	Hunt Club Cycling Links (Riverside to Paul Benoit)	\$550,000	\$275,000	2016-08-19	2016-08-23	Ottawa, City of	Design; A design will be developed to add cycling tracks along a 550m stretch of Hunt Club Road, in both eastbound and westbound directions. This is the final missing link in cycling facilities along a 13km stretch of Hunt Club Rd./West Hunt Club Rd. The project is intended to address cyclists' safety along this stretch of four-lane arterial roadway posted at 80km/h and for which there is no viable alternative cycling route. This project improves cycling connectivity from South Keys Transitway stations (Future LRT) to the employment nodes west of the Rideau River along Hunt Club Rd.
47474	PTIF	PTIF	ON	Ottawa, City of	McArthur Street Bike Lane	\$350,000	\$175,000	2016-08-19	2016-08-23	Ottawa, City of	Project modification request to extend the funding deadline to 2019-03-31 to allow implementation of the parking protected cycling lanes and the application of pavement markings under appropriate weather conditions during 2018. Design and Construction; This project will add bike lanes along both sides of McArthur Avenue, and will feature sections of parking-protected on-road bike lanes. The improved cycling link provides convenient access to the downtown core and University of Ottawa via the Adawe Crossing for residents living between the Rideau River and St. Laurent Blvd. There are no contiguous side street routes along this desire line which could offer an alternative route for cyclists. Residents of the Vanier Community will be able to use this cycling link on McArthur Ave. to reach Loia St. and the newly constructed pedestrian-cycling bridge to the Tremblay LRT and VIA Rail Stations. The limits of this project are between 575 McArthur (St. Laurent Blvd.) and 333 North River (North River Road).
47476	PTIF	PTIF	ON	Ottawa, City of	Cardinal Creek Park 18A multiuse pathway	\$1,300,000	\$650,000	2017-07-10	2016-08-23	Ottawa, City of	***Modified Project*** See timeline history for original information. Project modification request extended to 2019-03-31 to provide contractor with capacity to finish asphalt installation a recommended year after construction because there are existing geotechnical concerns at the site. Design and Construction; This project includes the design and construction of a multi-use pathway/ emergency access road, with a turnaround at the end, up to the future Cardinal Creek Park 18A (located between Cardinal Creek and the future Frank Kenny Road extension). The pathway will provide pedestrian and bicycle access from the existing residential neighbourhood near Trim Road and Innes Road to the site of the future park. The pathway is located adjacent or parallel to the existing stormwater management access road. Construction of the MUP and access to Cardinal Creek Park 18A and provides a connection to the existing Trim Road cycling network that connects with the Trim Road and Millennium Park Transit Stations. The MUP/access will also provide access to the City's future ultimate cycling network toward Frank Kenny Road which, is a very popular cycle route.
47477	PTIF	PTIF	ON	Ottawa, City of	Manotick - MUP between Main St and River rd and addition of MUP to two bridges	\$1,200,000	\$600,000	2016-08-19	2016-08-23	Ottawa, City of	Change request reflects the need to undertake additional design to resolve conflicts. Design; This project will develop designs to modify two bridge cross-sections for a protected area for cyclists, as well as develop designs for connecting links to the bridges. Since Manotick is largely situated on an island in the Rideau River, these bridges offer one of very few interconnections between the community and surroundings. The original bridges were designed without cyclists in mind, and in their current condition provide no reserved or protected cycling facilities. Transit options in this rural village are very limited. By providing a cycling connection over the bridge residents east of the Rideau River will have access to Express Routes 205 and 186.
47479	PTIF	PTIF	ON	Ottawa, City of	Sidewalk Renewal (misc locations)	\$5,110,000	\$2,555,000	2018-03-27	2016-08-23	Ottawa, City of	*** Revised project *** "Project modification request to extend deadline to 2019-03-31 and to increase funding contribution to allow additional works to be completed during 2018. Design and Construction; Renewal of sidewalks includes panel replacement, removal of obstacles, upgrade from asphalt to concrete, and may involve widening and bringing up to the new standards. The renewal of sidewalks enhances the pedestrian networks close to public transit, schools, and other high pedestrian demand areas. The City has an ongoing sidewalk renewal program. This project funding will be dedicated to focus on existing sidewalks along roadways and Priority A walkways (connecting routes) that have identified rehabilitation needs in major core area sectors, employment centres, design priority areas within 600 metres of transit stations. City wide prioritization will be finalized upon funding approvals. Examples could include sections along Metcalfe Street and Constitution Square in the vicinity of downtown LRT stations; St-Joseph Boulevard in the vicinity of the Orleans Transit Station; Richmond Road in the vicinity of the Lincoln Fields Transition Station; and Centrepointhe Pathway in vicinity of the Baseline Transit Station; and locations such as Patricia Avenue, Southmore Drive, Thorndale Drive and Highcroft Avenue."
47489	PTIF	PTIF	ON	Ottawa, City of	Rideau Canal Crossing (Fifth to Clegg)	\$21,000,000	\$10,500,000	2016-08-19	2016-08-23	Ottawa, City of	This proposed pedestrian and cycling bridge over the Rideau Canal will provide an important link to the pathways connecting to the City's Confederation Line at Hurdman and Lees Light Rail Transit Stations. This bridge will support the City's goals of transportation sustainability by promoting walking, cycling and transit – allowing more people to travel without the use of cars. It will relieve auto traffic on streets and bridges in the area, thus improving overall transit service reliability. It also connects communities, such as Old Ottawa South and the Glebe, that currently do not have convenient east-west walking and biking connections due to the presence of the Canal. With this connection, residents east of the Canal will have improved access to the main north-south transit service on Bank Street. It provides a new link to Lansdowne Park from Lees Station, reducing travel time for event attendees travelling from the east part of the city.
47172	PTIF	PTIF	NB	Saint John, City of	Replacement of rolling stock and extension to trail renewal.	\$7,236,260	\$3,618,130	2016-08-16	2016-08-18	Saint John Transit	Replacement of 14 transit busses to improve reliability, accessibility and service to ridership and add extension to harbor trail for pedestrian use.
47197	PTIF	PTIF	NS	Yarmouth, Town Muni	Active Transportation for Starrs Project	\$122,844	\$61,422	2016-08-16	2016-08-16	Yarmouth, Town of	The "Active Transportation for Starrs" Project is intended to add active Transportation infrastructure along the South side of Starrs Road, providing active transportation linkages between the various streets, businesses & Community facilities along starrs Road. generally, the new active transportation trailway will consist of ten-foot wide paved multi-purpose pathway running parallel to the street, but separated by a five-foot green buffer.
47098	PTIF	PTIF	NL	Corner Brook, Municipi	Three Bear Mountain Trail	\$181,367	\$90,684	2016-07-07	2016-07-07	Corner Brook, City of	Construct walking trail from West Street to the top of Three Bear Mountain. Approximate trail length 300 m. Work includes 300m of 1.5 m wide granular surface trail. The trail system in an integral part of the City's active transportation system including its public transit network. The project will provide a connection between existing sections of the trail network that will make it more convenient for transit users to access drop-off and pick-up points. This is particular important since the City transit system does not serve all neighbourhoods in the city. The outcome should be increased ridership.

47099	PTIF	PTIF	NL	Corner Brook, Municipality of	Bikeway Extension	\$95,218	\$47,609	2016-07-07	2016-07-07	Corner Brook, City of	Extension of the existing bikeway from Griffin Drive to Riverside Drive. Approximate length 900 m. Work includes 900 m of granular surface, 2 m wide, trail signage.
46930	PTIF	PTIF	BC	Vancouver, City of	Multimodal station amenities	\$4,000,000	\$2,000,000	2016-06-16	2016-06-16	Metro Vancouver	Construction of 8 bike parkades at Evergreen and Canada Line stations and bus exchanges.
54390	ICIP	PTIS	ON	London, City of	Oxford Street / Wharncliffe Road Intersection Improvements	\$8,800,000	\$3,520,000	2019-08-22	2019-08-23	London, Corporation of the City of	<p>The Project consists in the improvement of the transit movement through the busy intersection of Oxford Street and Wharncliffe Road.</p> <p>The project scope includes the construction of transit queue jump lanes in the eastbound and westbound lanes along Oxford Street as well as other intersection and traffic signal improvements. The full revitalization of this intersection includes transit queue jump lanes, intelligent traffic signals, street lightings, turning lanes, sidewalks and bike lanes. The cycling and walking infrastructures will provide direct connections to transit services.</p> <p>These major intersection improvements will improve overall traffic operations.</p>
54391	ICIP	PTIS	ON	London, City of	East London Link	\$104,200,000	\$41,680,000	2019-08-22	2019-08-23	London, Corporation of the City of	<p>The project consists of creating 6.3 km of dedicated bus lanes by widening the roadway from downtown (King Street) to Fanshawe College and by widening Highbury Bridge (overpass), Highbury Avenue and Oxford Street, and installing intelligent traffic signals with transit signal priority sensors and video along the transit route to reduce intersection delays and shorten travel times, including. Work will also include installation of 14 transit platforms along the route, creating 3.7 km of cycling facilities and a transit hub at Fanshawe College. The project also includes the purchase of 9 new buses. Concurrent underground work on sewers and water mains will also be undertaken.</p> <p>The on-street cycling network is not well developed, and at present there is limited connectivity in the existing network, with many lanes and paths limited to small segments of a road. This limits the ability of the current cycling network to provide access to current and future transit services. These shortcomings have previously been acknowledged by the City and the Transportation Master Plan. The proposed multi-use pathways and on-street cycling infrastructure will help to fill in these existing gaps and will act as first-mile and last-mile connections to the proposed rapid transit corridors.</p>
54400	ICIP	PTIS	ON	London, City of	Downtown Loop	\$28,200,000	\$11,280,000	2019-08-22	2019-08-23	London, Corporation of the City of	<p>The Project involves the construction of a Bus Rapid Transit (BRT) corridor in downtown London, including dedicated bus lanes, intelligent traffic signals, platforms and bicycle lanes, as well as the relocation and reconstruction of sidewalks and water mains impacted by construction of the corridor.</p> <p>The Project will deliver 2 km of roadways with dedicated bus lanes, sidewalks on both sides of the street (total 4 km), intelligent traffic signals at 12 intersections, 5 transit platforms, 480 m of bicycle lanes and relocate 600 m of water main.</p> <p>Upgrading transit service in the downtown area will improve the speed and reliability of bus transportation, particularly providing improved connections to regional transit nodes (Greyhound and Via Rail stations). The proposed bicycle path infrastructure will act as a first-mile and last-mile connection to the proposed rapid transit corridors by providing connections between the Queens/Rideout rapid transit stop, Dundas Place, and the Thames Valley Parkway active transportation network. Enhanced sidewalks along the corridor will improve recreational walking infrastructure in the downtown core. 100% of rapid transit stops will be fully accessible.</p>
54409	ICIP	PTIS	ON	London, City of	Dundas Place Thames Valley Parkway Active Transportation Connection	\$4,000,000	\$1,600,000	2019-08-22	2019-08-23	London, Corporation of the City of	<ul style="list-style-type: none"> •The Project consists of the construction of new bicycle lanes and improved sidewalks between the Thames Valley Parkway and transit stops along the planned Downtown Loop Bus Rapid Transit, facilitated by a reconstruction of a part of the roadway. •The Project will deliver 0.4 km of new bicycle lanes, 0.4 km of improved sidewalks, and 0.25 km of reconstructed roadway. •The Project will facilitate active transit that provides a first-mile/last-mile connection to the public transit system, by connecting the Thames Valley Parkway to the Downtown Loop Bus Rapid Transit.
54410	ICIP	PTIS	ON	London, City of	Wellington Gateway	\$95,300,000	\$38,120,000	2019-08-22	2019-08-23	London, Corporation of the City of	<ul style="list-style-type: none"> - Reconstruct 6.8 km of road between Downtown and Highway 401, including widening to establish continuous transit lanes and improving the Wellington "S-curve" -Install intelligent traffic signals to reduce intersection delays and shorten travel times, including transit signal priority, sensors and video cameras - Establish park-and-ride facility near Highway 401 - Install transit stations - Widen bridge over the Thames River for additional two traffic lanes and a multi-use path
53663	ICIP	PTIS	QC	Lévis, City/Town of	Construction of reserved lanes for public transit on boulevard Guillaume-Couture in Lévis	\$63,883,362	\$25,553,345	2019-06-19	2019-08-07	Société de transport de Lévis (STL)	The Project involves the construction of reserved lanes on two segments of boulevard Guillaume-Couture in Lévis totaling just over 4.5 km. The Project aims to reduce travel times and distances and increase the modal share of public transit in Lévis, so as to allow densification of the area. It will also promote active mobility through the improvement of pedestrian and bicycle infrastructure on the targeted segments.
53118	ICIP	GIS	AB	Edmonton, City of	Edmonton Valley Line West Light Rail Transit (LRT)	\$499,706,533	\$199,882,613	2019-03-06	2019-03-11	Edmonton, City of	The Project scope includes a 14 km LRT extension from Edmonton City Center to Lewis Farms with 14 LRT stops and two elevated stations at West Edmonton Mall and Misericordia Hospital; two bridges located at Groat Road and Anthony Henday Drive; integration with three transit centers; a park and ride facility at Lewis Farms; a new LRT maintenance and storage facility and the expansion of an existing operations and maintenance facility; and 36 articulated low-floor Light Rail Vehicles.
53118	ICIP	PTIS	AB	Edmonton, City of	Edmonton Valley Line West Light Rail Transit (LRT)	\$1,871,693,468	\$748,677,387	2019-03-06	2019-03-11	Edmonton, City of	The Project scope includes a 14 km LRT extension from Edmonton City Center to Lewis Farms with 14 LRT stops and two elevated stations at West Edmonton Mall and Misericordia Hospital; two bridges located at Groat Road and Anthony Henday Drive; integration with three transit centers; a park and ride facility at Lewis Farms; a new LRT maintenance and storage facility and the expansion of an existing operations and maintenance facility; and 36 articulated low-floor Light Rail Vehicles.

**Pages 277 to 278
are withheld
pursuant to paragraphs
14, 21(1)(a) and 21(1)(b)
of the *Access to Information Act*.**

**Les pages 277 à 278
Font l'objet d'une exception totale
conformément aux dispositions des
paragraphes
14, 21(1)(a) et 21(1)(b)
de la loi sur l'accès à l'information.**

**Note to the Deputy Minister – Additional Information**

Please find enclosed additional background information about specific transit projects that was not included in the package for the Minister.

CUTA ZEV Bus Survey Results (February 12, 2020)

- The 53 survey responses indicate that there are a total of 338 battery electric buses operating across Canada. These buses are largely concentrated in two provinces -- 266 in British Columbia and 66 in Ontario.
- While 83% of all respondents have green fleet strategies or plans in development, only 37% of small transit systems are working towards a green fleet strategy. [REDACTED]
- Approximately 70% of respondents noted that the largest obstacle to ZEV bus procurement was the cost of transitioning and other financial challenges.



- Based on CUTA's 2018 data, the average price of a hybrid electric bus is \$1,005,106 while a battery-electric model comes to \$923,590
- The findings also show that different sized transit systems face different challenges in electrifying their fleets.
 - Large transit systems highlighted a lack of clarity on the costs of infrastructure upgrades that are required to support deployments of electric buses [REDACTED]
 - Medium-sized systems identified a gap in knowledge and expertise around zero-emission fleets, as well as capital costs.
 - Survey respondents in mid-sized transit systems also noted that they are currently using or plan to use ICIP Public Transit Stream to procure buses for fleet renewal and expansion [REDACTED]



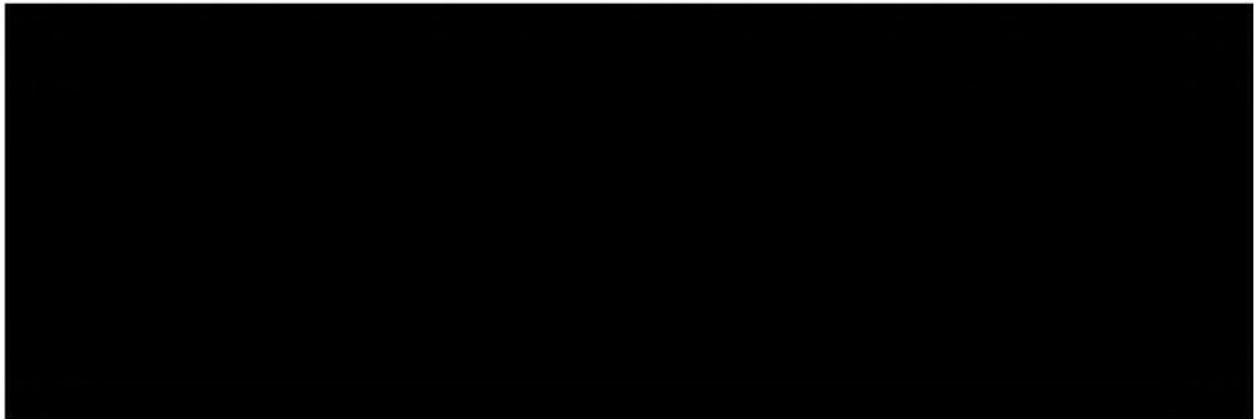
Investing in Canada Infrastructure Program Update

- To date the Investing in Canada Infrastructure Program has supported 46 transit projects, worth \$7.42 billion of federal transit investment in about one and a half years.
 - This amount reflects contributions made under both the Public Transit stream and the Green Infrastructure – Climate Change Mitigation sub-stream.

Calgary Green Line

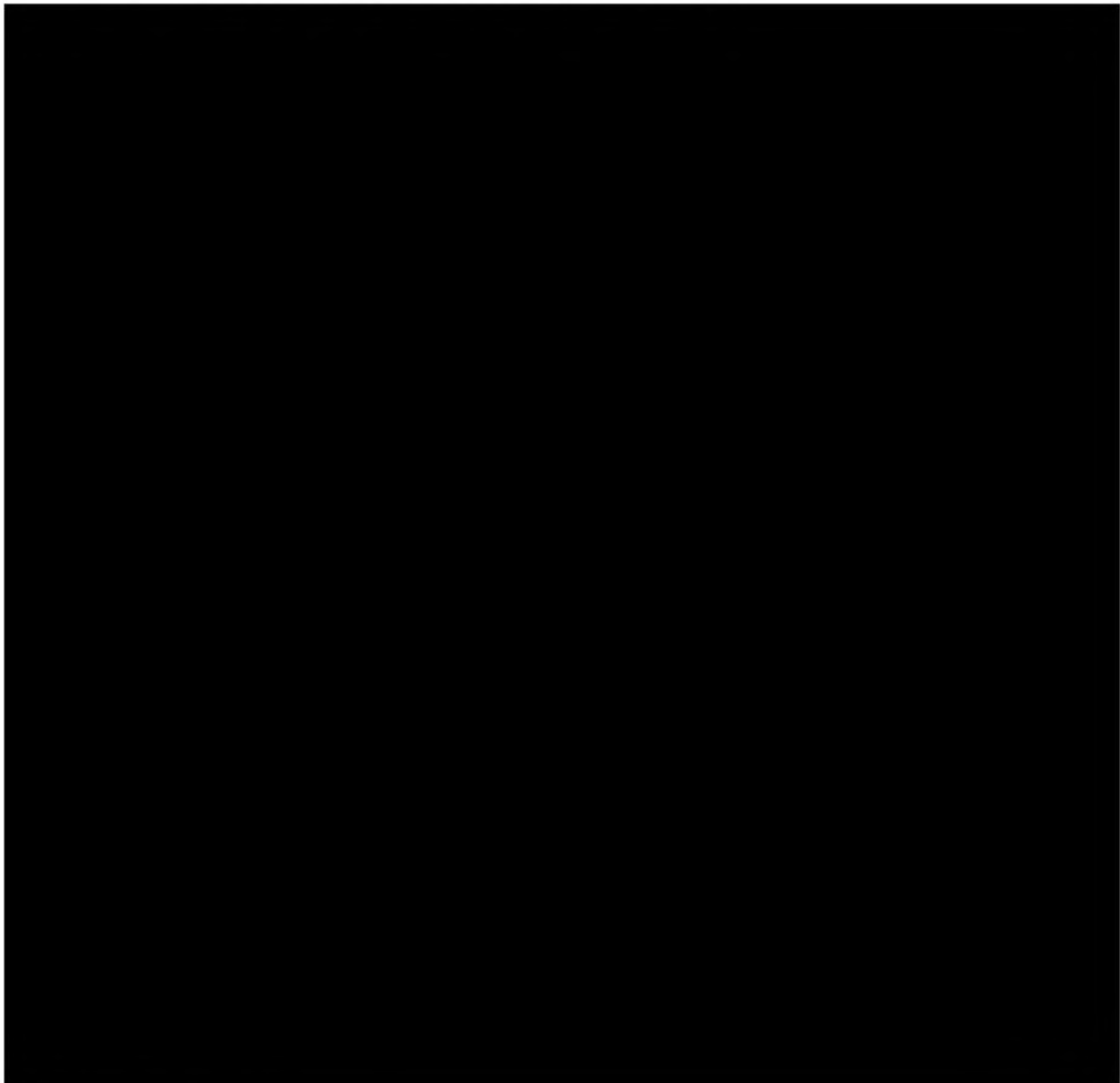


- This project will include the design, construction, and implementation of 20 km of LRT track, 14 new stations, a fleet of 70 low floor LRVs, a LRV maintenance and storage facility, eight bridges, four tunnels including a four km Centre City tunnel, and three park and ride facilities.
- The Government of Alberta announced in its last Budget that there would be a delay in flowing the \$1.53 billion in provincial funding to the Calgary Green Line LRT Project until after 2022-23.
- On October 28, 2019, Alberta also introduced Bill-20: *The Fiscal Measures and Taxation Act* which allows the province to terminate the funding agreement for the Calgary and Edmonton LRT projects without cause on 90 days' notice.





- The total cost of the project submitted to INFC under the Investing in Canada Infrastructure Program (ICIP) is \$4.36 billion, with a program contribution of \$1.53 billion. Funding will flow under two streams of ICIP:
 - The Public Transit Infrastructure Stream (\$1.078 billion); and
 - The Green Infrastructure Stream (\$451.6 million).





Annexes:

Annex A – Biographies

Annex B – CUTA Pre-Budget Submission (August 2019)

Annex C – CUTA ZEB Survey Results (February 12, 2020 - EMBARGOED)

Annex D – Letter from Calgary Transit RE: Alternative Fuel Strategy

Annex E – Public Transit Dashboard

Annex F – [REDACTED]

Additional information (not in the Minister's binder)

Annex G – TransLink's Low Carbon Fleet Strategy Background

TRANSLINK LOW CARBON FLEET STRATEGY

Briefing Note | November 27, 2019

EXECUTIVE SUMMARY

In October 2018, TransLink adopted two significant environmental targets: an 80 per cent reduction of greenhouse gas (GHG) emissions by 2050, and to utilize 100 per cent renewable energy in all operations by 2050. Although ambitious, our analysis indicates that meeting these targets is possible with zero and low-carbon fuels and technologies, but it means that bold action is required through policy decisions, investment planning, and funding support.

Our emerging strategy is to begin electrifying our bus fleet early next decade, and to use renewable fuels as we transition. Our electric trolley bus fleet makes up 17 per cent of our fleet, and is already zero-emission, and has no tailpipe air pollutants (nitrogen oxide, NOx and particulate matter, PM). In order to electrify our bus fleet commencing in the 2021 procurement year, now is the time to begin planning and procuring charging infrastructure for our new transit centre scheduled to open in 2023, and for one of our existing transit centres to convert to all-electric in 2026. We will also need to consider on-route charging for select routes within Metro Vancouver during this timeframe.

If we were able to purchase only zero-emission battery-electric buses throughout the next decade (635 buses¹), we can reduce our lifecycle GHG emissions by over 40 per cent (~90,000 tonnes CO2e) and eliminate air pollutants from these buses. In order to do so, we require in the order of **\$248M for the charging infrastructure and \$199M for the purchase of the battery-electric buses.**

TransLink does not have a funding source for the transition to electrification and if we had to make this transition with our current approved funding, we would be competing with transit expansion. It is important that TransLink continue to expand our bus fleet, thereby eliminating car trips and reducing GHG emissions in the region and at the same time, move forward with replacing buses with internal combustion engines to battery-electric buses, thereby reducing our own environmental footprint. TransLink, the region and the province will achieve a double benefit with respect to GHG emissions and air quality, aligning with the CleanBC strategy.

DISCUSSION

Transportation accounts for over 35 per cent of all greenhouse gas emissions in Metro Vancouver. TransLink plays a particularly important role in reducing emissions in the region by expanding and improving products and services to grow transit ridership, ease traffic congestion, and reduce single-occupancy vehicle kilometers traveled; by promoting compact, active, pedestrian- and transit-oriented communities; and by supporting non-motorized travel.

As one of the region's largest consumers of diesel fuel and operator of a fleet of heavy-duty vehicles, TransLink also plays an important role in reducing emissions in our own operations.

In October 2018, the Mayors' Council and TransLink's Board of Directors approved two environmental sustainability targets:

- An 80 per cent reduction of greenhouse gas (GHG) emissions by 2050; and
- Utilize 100 per cent renewable energy in all operations by 2050.

¹ Includes a 15% replacement ratio for depot charged buses, and 5% for on-route charged buses.

Our commitments align with federal and provincial legislation, specifically BC's *Climate Change Accountability Act* which includes legislated targets for reducing greenhouse gases by at least 40 per cent below 2007 levels by 2030, 60 per cent by 2040, and 80 per cent by 2050.

Low Carbon Fleet Strategy

Phase One of the 10-Year Mayors' Vision of the 2017-2026 Investment Plan committed TransLink to manage the system to be more efficient and customer-focused. Within this commitment, TransLink committed to developing a Low Carbon Fleet Strategy (LCFS) with the goal of reducing fleet emissions across the region of Metro Vancouver. In July 2017, TransLink began the development of the LCFS with the goal of:

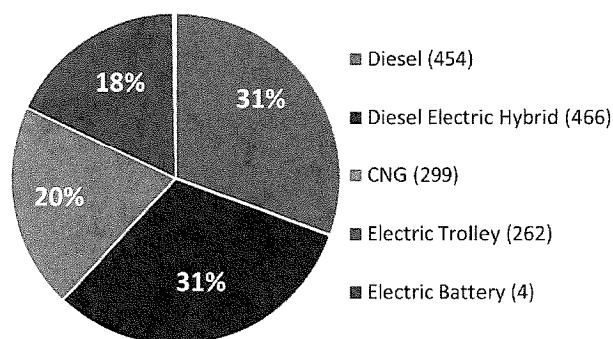
- Comparing bus technologies and fuels that:
 - are expected to be commercially available in 2020 and later years;
 - can significantly reduce fleet GHG emissions; and
 - will be consistent with projected future funding and CMBC service requirements.
- Identifying the level of additional funding that would be required to meet an 80 per cent reduction of GHG emissions from our revenue bus fleet by 2050.

The first phases of the LCFS analysis have concluded that the use of renewable fuels in existing buses can provide a cost-effective way to get early GHG reductions, but only significant electrification can achieve the 80 per cent reduction of GHG emissions by 2050. While current electric buses are more expensive than diesel buses, costs are projected to come down as the technology matures. Life-cycle cost parity for electric battery buses is expected by model year 2025 or sooner. While there will be fuel savings and a reduction of maintenance costs, the life-cycle fleet costs for electrification over the next 30 years are projected to be on par compared to diesel primarily because of the cost of charging infrastructure. Transitioning to battery electric buses will require significant charging infrastructure development and changes to bus operations.

Bus Fleet Composition and Procurement Plan

TransLink's bus fleet is operated and managed by Coast Mountain Bus Company (CMBC). Currently, CMBC operates 1,485 buses of which more than 45 per cent is all-electric trolleys, diesel-electric hybrid or battery-electric buses (refer to Figure 1, below).

Figure 1: Current CMBC Bus Fleet Composition (1,485 buses)



CMBC generally replaces vehicles after 17 years of operation and/or over 1M kilometers. At present, as older diesel vehicles are phased out, they are replaced with either compressed natural gas (CNG) or diesel-electric hybrid vehicles.

Table 1 below outlines CMBC's Bus Procurement Plan over the next 10 years (2020-2029). In addition to the 40-ft and 60-ft buses, the current trolley fleet of 262 buses has been in service since 2006 and is scheduled for replacement in the 2027–2028 timeframe. These buses are already powered by electricity and therefore, have equivalent carbon emissions to battery buses. There is a strong business case to maintain the current trolley system for one more procurement cycle while focus is made on transitioning the older generation diesel and hybrid buses to zero emission.

Table 1: CMBC Bus Procurement Plan²

		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	TOTAL
40-ft	Baseline	0	57	126	69	197	0	0	17	0	17			483
	Procurement	0	9	19	10	16	0	0	3	0	3			60
	Inc - depot charge	0	66	145	79	213	0	0	20	0	20			543
	TOTAL	0	66	145	79	213	0	0	20	0	20			543
60-ft	Baseline	0	0	16	0	39	0	0	25	0	0			80
	Procurement	0	0	2	0	6	0	0	4	0	0			12
	Inc - depot charge	0	0	18	0	45	0	0	29	0	0			92
	TOTAL	0	0	18	0	45	0	0	29	0	0			92
TOTAL BUSES	Baseline	0	57	126	69	197	0	0	17	0	17			483
	Procurement	0	9	19	10	16	0	0	3	0	3			60
	Inc - depot charge	0	66	145	79	213	0	0	20	0	20			543
	TOTAL	0	66	163	79	258	0	0	49	0	20			635
TOTAL BUSES	Baseline	0	0	16	0	39	0	0	25	0	0			80
	Procurement	0	0	2	0	6	0	0	4	0	0			12
	Inc - depot charge	0	0	18	0	45	0	0	29	0	0			92
	TOTAL	0	0	18	0	45	0	0	29	0	0			92
TOTAL BUSES	Baseline	0	57	126	69	197	0	0	17	0	17			483
	Procurement	0	9	19	10	16	0	0	3	0	3			60
	Inc - depot charge	0	66	145	79	213	0	0	20	0	20			543
	TOTAL	0	66	163	79	258	0	0	49	0	20			635
TOTAL BUSES	Baseline	0	0	16	0	39	0	0	25	0	0			80
	Procurement	0	0	2	0	6	0	0	4	0	0			12
	Inc - depot charge	0	0	18	0	45	0	0	29	0	0			92
	TOTAL	0	0	18	0	45	0	0	29	0	0			92

OPPORTUNITY

The CleanBC strategy outlines specific actions to meet BC's 2030 GHG reduction goals by shifting away from fossil fuels and towards clean and renewable energy. The current plan outlines action that will achieve 75 per cent of its GHG reduction goals, and the remaining 25 per cent is to be determined. One of the sectors identified as a strong potential in making up the 25 per cent is cleaner public transportation. TransLink can help the province meet its goals.

Over the next decade, TransLink has the opportunity to transition approximately 50 per cent of our bus fleet to clean, zero-emission electric buses. If this opportunity is missed and internal combustion engines are procured, realizing any meaningful GHG reductions over the next two decades will be a challenge.

² This Fleet Procurement Plan includes an additional 15% more buses for depot charged buses and 5% more buses for on-route charged buses. This Plan only includes replacement buses, and not expansion. 50 replacement compressed natural gas (CNG) buses have been excluded in the 2021 procurement year to fully utilize the existing fueling infrastructure. It is assumed TransLink will procure renewable natural gas for these buses.

Recommended Technology Pathway 2020-2050

The recommended technology pathway for bus and fuel purchases between 2020 and 2050 includes:

- Beginning in 2023, start to replace retiring diesel and CNG 40-ft and 60-ft transit buses with battery-electric buses. Between 2023 and 2030, TransLink may elect to replace some retiring buses with new hybrid-electric buses, but after 2030 all retiring buses should be replaced with battery buses to achieve complete electrification of the fleet by 2050;
- With the evolution in battery technology, depot charging may be sufficient for many routes. On-route charging may also be used for selected routes.
- Replace the existing trolley bus fleet with new trolley buses at the end of their useful life, in 2027-2028, and continue to operate the trolley bus system in the short and medium term. After 2040, re-evaluate the option of replacing trolley buses with battery buses.
- After 2030, TransLink should assess commercial availability and cost of long-range battery buses and hydrogen fuel cell buses as potential options for replacing retiring highway coaches; and
- After 2030, TransLink should assess commercial availability and cost of battery shuttle buses as a potential option for replacing retiring shuttle buses in later years.

Fleet Electrification Transition Costs - 2020-2050

All costs are at the planning level and will be revised during future analytical and design phases.

Through 2050, the modeled fleet electrification scenario will require \$1.47 billion (nom \$) in additional capital funding, compared to baseline fleet replacement with hybrid electric, CNG, and trolley buses. However, there will be a net operating cost savings of \$994 million (nom \$). This would result in a total net total cost of \$473 million to electrify the fleet (an increase of 2.3 per cent).

Fleet Electrification Transition Costs – 2020 - 2029 Investment Plan Cycle

Three options for electrification investments between 2020 and 2029, were developed and are described below:

Cautious and Constrained: This is the least aggressive and lowest cost option, in recognition that funding is not yet secured, and that the technology is continuing to evolve rapidly, such that moving at a measured pace may result in lower net costs over the long term.

Moderate: This is a faster pace of investment which achieves greater GHG reductions over the next 10 years while still managing technology risk.

Leadership/Leading Edge: This is the most aggressive and most costly option representing the fastest possible turn-over of the fleet to battery-electric buses without retiring existing buses early. This option achieves maximum GHG reductions over the next 10 years, but also incurs a greater level of financial and technology risk.

Table 2 below summarizes the 2020 - 2029 bus fleet electrification details and costs associated with each of the three investment options.

Table 2: Bus Fleet Electrification Plan and Costs 2020 – 2029

		INVESTMENT OPTIONS		
		CAUTIOUS & CONSTRAINED	MODERATE	LEADERSHIP LEADING EDGE
Battery-Electric Buses Purchased		95	314	635
Bus In-route Chargers Installed		1	4	17
Bus Depot Chargers Installed at		MTC	MTC	MTC and BTC
Routes Electrified	Depot Charging	30% of MTC routes (4 routes)	100% of MTC routes	100% of MTC routes 80% of BTC routes
	In-route* Charging	Route 100	Routes 100, 159, 169, 188	Route 100 and 95% of PTC routes
Capital Investments	Buses	\$37	\$110	\$199
	Infrastructure	<u>\$58</u>	<u>\$89</u>	<u>\$248</u>
2020-2029 (nom \$ millions)** TOTAL		\$95	\$199	\$447 (refer to Appendix A)

*To be confirmed as battery technology evolves.

** All costs and savings are planning level estimates and will be revised with future analytical and design work.

***Exclusive of construction and financing costs.

There will be operational savings with each of the investment options noted above. The estimated operational savings range from \$27M to \$124M and are dependent upon several key cost assumptions around maintenance and fuel costs.

GHG / Air Emissions

Figure 2 below summarizes the expected GHG reductions by 2050 associated with each of the capital investment options. All three investment options enable TransLink to reach an 80 per cent reduction of GHG emissions by 2050 and have varying reductions over the next 10 years based on the three options for capital investments (refer to Table 3 below).

Figure 2: Estimated GHG Reductions by 2050

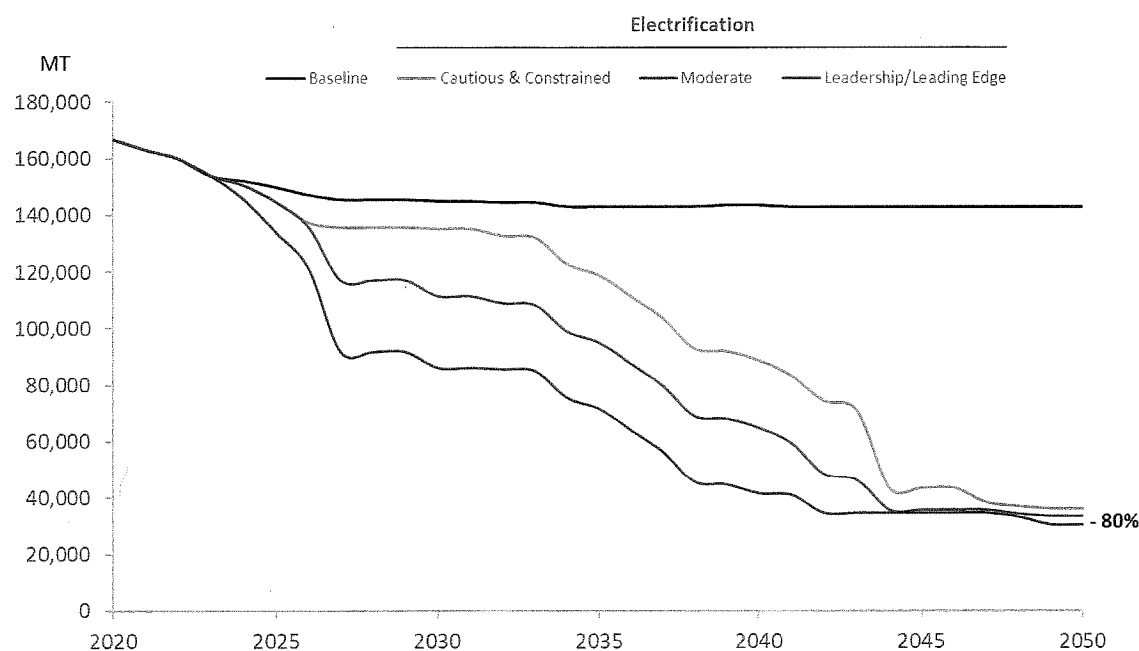


Table 3: Estimated GHG Reductions (2020-2029)

METRIC	INVESTMENT OPTIONS		
	CAUTIOUS & CONSTRAINED	MODERATE	LEADERSHIP LEADING EDGE
GHG Reduction 2020 – 2029 (tonnes)	56,000	137,000	269,000
GHG Reduction from Baseline by 2029 (per cent)	19%	33%	48%

The transition to electric buses also eliminates particulate matter and nitrogen oxides, common urban air pollutants. Compared to diesel-hybrid buses, battery electric buses are expected to reduce annual nitrogen oxide (NOx) by 26,000 g per bus and particulate matter (PM) by 3,500 g per bus.

CHALLENGES

Transitioning to a low carbon fleet will require support from our municipal partners, the province and the federal government. Some of the key federal and provincial actions include policies that increase the supply of zero emissions vehicles and that increase the availability of renewable fuels. While the long-term targets are achievable, there are challenges to achieving them:

Funding support:

- For TransLink to achieve its targets, electrification of the fleet will be more capital intensive and will require leveraging capital contributions from external sources, such as the Green Infrastructure Fund, or funding earmarked to support CleanBC.

BC's low carbon fuel program – compliance credits:

- The ownership of electricity credits under BC's low carbon fuel program is currently designated to BC Hydro. While BC Hydro has been an excellent partner in the development of TransLink's low carbon fleet strategy, they do not have a program dedicated to reinvesting the revenue gained from the sale of their compliance credits back into clean transportation. TransLink estimates that revenue gained through the electrification of our bus fleet would be equal to approximately \$250M over the next 30 years. If TransLink was provided ownership of the electricity credits, the revenue would directly advance clean transportation fuels in the province.

Technology advancements:

- While the pathway to a low carbon fleet doesn't depend on new technologies, existing technologies are expected to improve in quality and/or price over time. For example: the cost of batteries for electric buses is expected to drop almost 50 per cent in the next ten years. If the availability and cost of renewable fuels doesn't improve over time, it will be difficult to justify the transition. Conversely, if existing technologies advance faster than anticipated and/or new technologies emerge, achieving the targets will become easier.

Power Resiliency:

- For a full fleet roll-out of electric buses, TransLink will have to develop contingency plans for maintaining some level of bus charging even if grid power is disrupted to one or more charging locations. Information provided by BC Hydro indicates that their system has historically been very reliable. Between 2015 and 2018, 70 percent of all circuits had annual outage time of less than 5 hours, and 90 percent had annual outage time of less than 10 hours. In addition, for 86 percent of circuits average outage time per incident was less than an hour. Most outages were caused by either weather or vehicle damage. Given the high reliability of the system, the recommended alternative is to use mobile diesel generator(s) that can be moved between locations as needed, rather than providing fixed back-up generation at every charging location.
- For depot charging one or more 750 kW mobile generators would be required, with each providing the ability to supply power to up to 15 buses charging concurrently overnight at a depot. For in-route charging one or more 450 kW mobile generators would be required³, with each providing the ability to supply power to one in-route charger.
- The number of chargers required would depend on the number of electric buses deployed, and the likelihood of losing power at each charging location separately, and at multiple locations simultaneously. TransLink will work with BC Hydro to further evaluate historical trends and to project future needs.

³ It may also be possible to develop a mobile battery pack system that could power an in-route charger for 12-hours or more.

Appendix A: LCFS Funding Requirements

LCFS Funding Requirements

The total capital investments required to meet the GHG reductions that aligns with the provincial targets is approximately **\$450M** and includes:

- **\$200M** for the procurement of 635 battery-electric buses (incremental costs from diesel-hybrid and compressed natural gas), and
- **\$250M** is for infrastructure investments, including designing and operating 100 per cent of routes out of Marpole Transit Centre, 80 per cent of the routes out of Burnaby Transit Centre, and 95 per cent of the routes from Port Coquitlam Transit Centre as electric. All costs are planning level estimates and will be revised with future analytical and design work. Costs are exclusive of construction and financing costs.

PROJECTS	PROJECT DESCRIPTION	2021	2022	2023	2024	2027	2029
Marpole Transit Centre	Make ready for full depot electrification; installation of SAE J3105 chargers	\$50.1M	\$23.0M	\$7.2M			
Burnaby Transit Centre	Make ready for full depot electrification; depot expansion and installation of SAE J3105 chargers				\$56.9M	\$76.1M	
On-Route Chargers	Install on-route chargers and depot maintenance chargers		\$3.3M	\$29.8M			
Buses (incremental cost to diesel-hybrid)	On-route and depot charged battery-electric buses	\$23.2M	\$59.0M	\$23.3M	\$64.5M	\$21.9M	\$7.2M
TOTAL FUNDS		\$74M	\$86M	\$61M	\$122M	\$98M	\$7M

**Page 291
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of the *Access to Information Act*.
In addition, some information is severed as
agreed upon with the requester.**

**Le page 291
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conformément aux dispositions des
paragraphes
21(1)(a) et 21(1)(b)
de la loi sur l'accès à l'information.
De plus, certaines informations ont été
protégées comme convenu avec le
demandeur.**